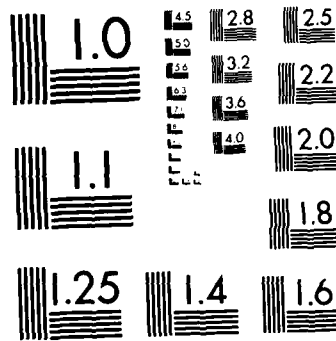END

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The Costs and Benefits of the Soviet Empire, 1981-1983

Charles Wolf, Jr., Keith Crane, K. C. Yeh,
Susan Anderson, Edmund Brunner

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This report extends, through 1983, estimates of the economic costs of the Soviet empire that were published in a previous Rand study (R-3073/1-NA) covering the period 1971 to 1980. Its objectives are (1) to determine the extent to which the Soviet Union allocates resources for its broad international security interests; (2) to evaluate the burden that the empire imposes on the Soviet economy, and how this burden has changed in recent years; (3) to identify gaps in the estimates as a guide to needed improvements in future data collection; (4) to evaluate the political, military, and other benefits that the Soviet leadership attributes to the empire; and (5) to consider the extent to which economic stringencies within the Soviet Union, as well as other possible explanations, account for the marked changes that occurred in empire costs between 1981 and 1983. The study finds that Soviet empire costs declined appreciably during the early 1980s, but remained substantial in both absolute and relative terms.

R-3419-NA

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1700 MAIN STREET
P O BOX 2138
SANTA MONICA, CA 90406-2138

PREFACE

This report was prepared as a follow-on to R-3073/1-NA, *The Costs of the Soviet Empire*, by Charles Wolf, Jr., K. C. Yeh, Edmund Brunner, Jr., Aaron Gurwitz, and Marilee Lawrence, September 1983. It represents a part of Rand's continuing research program in International Economic Policy, the principal focus of which is on the interface between international economic and national security issues. The research was sponsored by the Director of Net Assessment, Office of the Secretary of Defense (OSD), under Rand's OSD-supported Federally Funded Research and Development Center.

This analysis of the costs and benefits of the Soviet empire should be of interest to offices in the Department of State, the Department of Defense, the National Security Council, and other agencies concerned with Soviet military and foreign policies in Eastern Europe and the Third World.

SUMMARY

This report extends, through 1983, estimates of the economic costs of the Soviet empire that were published in a previous Rand study covering the period 1971–1980. Our objectives resemble those of our earlier study: to determine the extent to which the Soviet Union allocates resources for purposes relating to its broad international security interests; to evaluate the burden that the empire imposes on the Soviet economy, and how this burden has changed in recent years; to identify gaps in the estimates as a guide to needed improvements in future data collection; and, finally, to evaluate the political, military, and other benefits that the Soviet leadership attributes to the empire. One other objective is more prominent in the present study than in the prior one: to consider the extent to which economic stringencies within the Soviet Union, as well as other possible explanations, account for the marked changes that occurred in empire costs in the 1981–1983 period.

As used here, the term "empire" connotes a special degree of influence, control, or constraint exercised by the Soviet Union over its three component parts: the empire "at home"; the contiguous empire comprising Eastern Europe and Afghanistan; and the empire "abroad," including such countries as Cuba, Vietnam, South Yemen, Ethiopia, Angola, Nicaragua, and others. As in our previous study, however, we are concerned here with estimating the costs only of the empire's external components: namely, the contiguous empire and the empire abroad.

The dollar costs of the Soviet empire (CSE) rose during the decade of the 1970s, reached a peak in 1980, remained at approximately the same level in 1981—about $43.2 billion in 1981 dollars—and declined fairly rapidly thereafter to approximately $35.4 billion in 1982 and $28.6 billion in 1983. The decline represented a decrease of over 35 percent from the 1980 peak year, and an average annual rate of decline of nearly 21 percent over the three years. This decline was principally due to the drop in world oil prices, combined with an increase in the subsidized price that the Soviet Union charged for its oil exports to Eastern Europe. Despite the decline, average empire costs in constant dollars were actually higher than they were in the 1970s: $35.7 billion, compared with $25.5 billion.

The relative size of empire costs changes sharply when the data are expressed in rubles rather than in dollars, for reasons relating to persistent overvaluation of the Soviet foreign trade ruble.

By 1983, total empire costs in constant 1980 rubles (CSE(R)) had declined to about 27.5 billion from the peak of 45.9 billion reached in 1980, a decrease of about 40 percent during this period, and an annual rate of decrease for the 1981–1983 period of nearly 25 percent. Notwithstanding that decline, the average level of empire costs in rubles during the 1981–1983 period was considerably higher than that for the preceding decade: about 36.0 billion rubles, compared with 21.4 billion.

To size Soviet empire costs, it is useful to compare them with Soviet GNP and Soviet military spending. The ratio of ruble empire costs to GNP declined from a peak of about 7 2 percent in 1980 to 4.0 percent in 1983, but the average was 5.4 percent in the 1981–1983 period, compared with a ratio of 3.7 percent for the 1971–1980 decade.

A similar pattern results when empire costs are compared with Soviet military spending. In rubles, this ratio rose from approximately 14.2 percent in 1970 to about 54.3 percent in 1980, declining sharply thereafter to 30.8 percent in 1983. But again, the average was higher in the 1981–1983 period than in the preceding decade: 41.8 percent compared with 28.6 percent.

That Soviet empire costs declined in the 1981–1983 period compared with the 1971–1980 period is no more significant than that these costs remained substantial in absolute terms, as well as in relation to Soviet GNP and military spending.

While the aggregate costs of the Soviet empire were decreasing in the 1981–1983 period, their composition was also changing. The proportion of total empire costs represented by trade subsidies decreased markedly from 52 percent at the peak in 1980 to 40 percent in 1983 in terms of dollars, and from 62 percent to 53 percent in terms of rubles. Export credits constituted a rising proportion of total empire costs while military aid, calculated as the difference between total military deliveries and hard-currency sales, was a declining proportion of the total costs. Although total military deliveries remained high, the proportion represented by hard-currency sales rose sharply; hence, the remaining portion of total military deliveries, which constitutes the aid portion, fell: from 18 percent of total empire costs in 1980 to only 12 percent in 1983, in dollar terms, and from 22 percent to 16 percent in terms of rubles.

During the 1981–1983 period, the other components of empire costs (incremental costs of Soviet military operations in Afghanistan, economic aid, and the costs of Soviet covert and related destabilization activities) increased in absolute amounts and as proportions of total empire costs, in both dollar and ruble calculations.

While total empire costs were declining, the regional distribution of these costs changed markedly. The share of the declining total

incurred in Eastern Europe fell sharply from about 64 percent at the end of the 1971–1980 period to 52 percent in 1983, while the share incurred in Vietnam and Cuba rose correspondingly from about 17 percent in 1980 to 28 percent in 1983. The share of total empire costs incurred in Afghanistan and other Third World countries remained nearly constant (about 19.5 percent) during this period. Thus, a substantial redistribution of the declining total empire costs occurred among the Council for Mutual Economic Assistance (CMEA) countries, from the East European members to Cuba and Vietnam.

Notwithstanding the significant decreases in Soviet empire costs, their totals were still more than twice the corresponding costs of the U.S. "empire." To make this comparison, we adjusted Soviet empire costs by subtracting the estimated cost of Soviet covert and related destabilization activities to make them more nearly comparable with the U.S. estimates. With this adjustment, Soviet empire costs were about $25 billion in 1983, compared with U.S. costs of $10.9 billion. U.S. costs were 0.3 percent of U.S. GNP; the adjusted Soviet costs were 1.3 percent of Soviet dollar GNP and 3.6 percent of ruble GNP.

The benefits attributed to the empire by the Soviet leadership can be inferred indirectly from the empire's large, even though diminished, economic costs. If the benefits did not appear equivalently high, the leadership would presumably be unwilling to incur costs of this magnitude.

The benefits can also be probed more directly. For example, the Soviet empire multiplies the effectiveness of Soviet military and naval forces. Soviet naval bases in Vietnam, South Yemen, and Cuba enable Soviet forces to be operationally deployed for longer periods of time in the China Sea, the Indian Ocean, and the Atlantic than would otherwise be possible. Soviet air bases in Afghanistan, and air facilities in Ethiopia and South Yemen, provide potential staging areas that enhance the capabilities of the Soviet Air Force, as well as of Soviet ground, naval, and air units. The result is potential Soviet access to, or control of, oil supplies in the Persian Gulf. Forward basing of Soviet air and ground units in Central and Eastern Europe can also be viewed as enhancing Soviet security by providing a forward defense against external attack. In addition, and perhaps more important, these forces constitute a politically useful military lever by posing a threat to Western Europe. Finally, the empire provides the opportunity for developing and logistically supporting allied or "proxy" forces which, operating in conjunction with or in place of Soviet forces, enhance Soviet capabilities for projecting military power in the Third World.

The Soviet Union also derives significant intelligence benefits from the empire by the acquisition of additional points of contact, listening posts, and sources of information for Soviet intelligence agencies.

The political benefits are less tangible and less quantifiable, but probably even more important, than the military and intelligence benefits. For example, much of the Soviet leadership probably equates maintaining and expanding the empire with maintaining the momentum of international socialism. Expansion of the empire also performs a valuable function by contributing to a sense of urgency and crisis, which promotes internal cohesion and thus control within the system. Furthermore, the high political value placed by Soviet leadership on maintaining the empire, as well as adding to it, is suggested by two tenets of Soviet ideology, which focus on the central importance of the empire: support for wars of national liberation, and the Brezhnev doctrine proclaiming the "irreversibility" of socialist revolutions in the Third World.

The political and strategic importance of the empire to the Soviet Union has been cogently summarized by Vladimir Bukovsky's observation that "The survival of the Soviet regime depends today on three permanent factors . . . [including] expansion in the third world." (The other two factors are international tension and military competition with the West.)

We consider four possible explanations for the decreases in empire costs that occurred in the early 1980s: (1) reduced economic needs and demands by the empire; (2) reduced value attributed to the benefits of empire by the Soviet leadership; (3) the automatic operation of the five-year pricing formula used by the CMEA countries in their mutual trading arrangements; and (4) increased resource pressures resulting from growing stringencies in the Soviet economy. Because there is very little supporting evidence for either of the first two hypotheses, it seems probable that the third and fourth must carry the brunt of the explanation.

Through the workings of the five-year moving-average pricing formula for Soviet oil exports to the CMEA countries of Eastern Europe, the Soviet subsidy on these oil exports diminished considerably during the 1980-1983 period as world oil prices dropped by 15 to 20 percent in real terms. Although subsidization of trade with Eastern Europe has continued, it has increasingly taken the form of paying above-market prices for machinery imports from Eastern Europe, rather than charging below-market prices for Soviet oil exports to Eastern Europe. In the case of Cuba, oil prices are set so that the barter terms of trade between sugar and oil are constant. Between 1980 and 1983, world sugar prices fell by more than the fall in world oil prices.

Consequently, Soviet subsidization of trade with Cuba increasingly took the form of paying higher implicit prices for sugar imports.

It is also plausible that tightened economic stringencies within the Soviet Union contributed to the decline in expenditures on the empire. Among those stringencies are the lagging rates of Soviet economic growth, nearly constant levels of per capita consumption, and the chronic problems of declining productivity, rising capital-output ratios, and rigidity and cumbersomeness of the system as a whole. That the decline in empire costs has been influenced by these economic stringencies, rather than simply by the workings of the CMEA pricing formula, is also suggested by the fact that other components of empire costs besides trade subsidies have decreased during the first three years of the 1980s' decade.

The seriousness of the Soviet economic predicament is perhaps indicated by one additional factor relating to empire costs: In the first three years of the 1980s, Soviet real economic growth was slower while empire costs were declining than it was during the 1970s, when empire costs were higher.

The Soviet economic stringencies seem likely to persist, especially with the 1986 drop in world oil prices, which has eroded two-thirds of Soviet hard-currency earnings. Under these circumstances, the costs of empire in the remainder of the 1980s are likely to follow the pattern of the early 1980s: tighter constraints, and more careful monitoring and control by the Soviet leadership. In managing the imperial enterprise, Soviet behavior may be acutely ambivalent—on the one hand, placing greater emphasis on self-reliance among the members of the empire and their diminished access to Soviet benefactions, while, on the other hand, retaining a willingness to provide additional resources when promising opportunities arise for empire expansion. Perhaps the Soviets will resolve this dilemma by applying more exacting criteria in the selection of promising opportunities. The concern of Soviet leadership in conducting its imperial operations can be likened to that of the management of a large enterprise: how to limit the costs of realizing, or advancing, its multiple and sometimes conflicting objectives. In times of "prosperity"—for example, the 1970s, when oil prices were rising and hard-currency earnings were high—management is likely to be more concerned with advancing its objectives than with limiting costs. In times of "recession"—for example, the 1980s—management is likely to be more concerned with limiting costs.

ACKNOWLEDGMENTS

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I. INTRODUCTION

The purpose of this study is to extend, through 1983, estimates of the economic costs of the Soviet empire that were published in a previous Rand study covering the period 1971–1980.[1] To assure close comparability between the two sets of estimates, we use the same costing methods and source materials employed for the earlier study.

Our objectives also remain much the same. Primarily, we seek to enlarge our understanding of the extent to which the Soviet Union devotes resources to promoting its international security concerns. Soviet military spending, for which detailed if controversial estimates are available, is central to this pattern of resource use; but the costs of the Soviet empire (CSE) represent another piece of the mosaic, one that both complements and is complemented by Soviet military capabilities.

As in the earlier study, we again examine the burden that CSE imposes on the Soviet economy, and how the burden changed in the early 1980s. One variation on this theme now looms as a more prominent objective: to ascertain the extent to which economic stringencies within the Soviet Union have induced the Soviets to curtail CSE.

Finally, we seek to identify gaps and inadequacies in data coverage as a guide to improved data collection and analysis in the future.

As in the earlier study, the estimates of CSE for 1981–1983 are principally focused on nonmilitary costs, even though it is clear that Soviet military spending and CSE are often complementary. For example, trade subsidies and foreign aid may be part of the price that the Soviets pay for military bases in Cuba and Vietnam, and these, in turn, increase the effectiveness of Soviet military capabilities. On the other hand, Soviet military capabilities also contribute to the Soviet imperial enterprise by securing and enhancing Soviet influence and control in Eastern Europe and other parts of the Soviet empire.

While examining the more recent costs of empire, we have also given more attention to the benefits that the Soviet leadership attributes to the empire as recompense for the costs. Besides simply assuming that the aggregate benefits must at least equal the costs, we have tried to take more detailed and explicit account of the direct and indirect benefits which the Soviet leadership can be presumed to attribute to the imperial enterprise.

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[1]Charles Wolf, Jr., K. C. Yeh, Edmund Brunner, Jr., Aaron Gurwitz, and Marilee Lawrence, *The Costs of the Soviet Empire,* The Rand Corporation, R-3073/1-NA, September 1983 (hereinafter cited only by title).

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II. TERMINOLOGY AND METHODOLOGY

When applied to the Soviet Union, the term "empire" has both generic and distinctive connotations. Generically, the term implies a special degree of influence, control, or constraint exercised by the imperial power over the empire's component parts. That this degree varies widely among areas of the empire is no more characteristic of the Soviet empire than of the Roman, Ottoman, British, French, or Japanese empires of the past.[1]

As for distinctive connotations, there are, indeed, three different Soviet empires: the empire "at home"—that is, lying within the geographic boundaries of the Soviet state; the geographically contiguous part of the empire—that is, Eastern Europe, and more recently Afghanistan; and the empire "abroad." As in our previous study, we are again concerned with the costs of only the latter two empires.

Soviet influence and control within the two external empires vary widely, spanning a range from Eastern Europe to Cuba and Vietnam (which, together with the Soviet Union and Mongolia, compose the membership of the Council for Mutual Economic Assistance (CMEA)), and varying still further among South Yemen, Angola, Ethiopia, Mozambique, Nicaragua, Syria, Libya, and North Korea—some of which are formally recognized as Marxist-Leninist states while others are characterized simply as "progressive" or "revolutionary" states.

Another distinguishing facet of the Soviet empire is that the imperial power's special position and influence is generally exercised through the Communist Party of the Soviet Union (CPSU), and the associated communist parties of the other parts of the empire, rather than through formal governmental channels. Specifically, the International Department of the CPSU is typically more active in empire affairs than is the Foreign Ministry of the Soviet government.

In practice, the Soviet Union has three unique institutionalized mechanisms for achieving and maintaining both Soviet predominance and a reasonable degree of cohesion within the empire: first, the common ideology of "socialist internationalism," organizationally implemented through the International Department of the CPSU in concert with the parties of the component parts of the empire; second, the internal state security organs within the component parts of the empire, overseen by the KGB, with specialized training and support

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[1]See ibid., pp. 3–5.

often delegated to the East German state security apparatus; and third, through military planning, training, and operational support provided by the Soviet military establishment, indirectly in the form of logistics and equipment for Cuban, North Korean, and other "fraternal" states, and occasionally through direct employment of Soviet combat forces as in Afghanistan. Typically, the military leaders of the empire's component parts receive training in the Soviet Union's Voroshilov Military Academy, thereby enhancing their reliability and loyalty within the Soviet imperial system.

As in the previous study, our current CSE estimates cover several types of costs: those incurred to maintain or increase control in countries already under Soviet domination; those incurred to acquire or expand influence in countries that are promising candidates for absorption into the empire; and those incurred to thwart or disrupt opposition to the empire's future expansion (for example, Soviet support for destabilization activities in Turkey). Thus, some costs of empire are incurred in activities and in countries that are clearly *outside* the confines of the Soviet empire as we previously defined it. In considering these latter costs, it is not implausible to view Soviet imperialism as analogous to a large business enterprise: Some of its costs represent "venture capital," or "research and development," efforts undertaken to test new "markets" or develop new fields of endeavor. Some such efforts will be ineffectual and may be terminated or deferred; others may be expanded if the initial results warrant.

Estimates of CSE for the period 1981 through 1983 include the same six cost-elements covered in the earlier study: (1) trade subsidies, calculated as the reduction in prices charged for Soviet fuel exports to Eastern Europe and other parts of the empire, compared with then-prevailing world-market prices, as well as the premium prices paid by the Soviet Union for imports from these countries, compared with prevailing world-market prices for similar products; (2) export credits, construed as the Soviet Union's trade surpluses with communist and Third World countries, where these net surpluses exceeded $10 million in any one year; (3) Soviet economic aid, net of aid repayments; (4) military aid, calculated as total military deliveries minus hard-currency military sales; (5) incremental costs incurred by Soviet military forces in Afghanistan, above what these forces would cost if their normal basing and operational modes were maintained; and finally, (6) a part of total Soviet covert and related activities that, by a series of plausible as well as arguable assumptions, can be assigned to the Soviet imperial enterprise, as distinct from maintenance of the system's control within the Soviet Union itself.

Except for the incremental costs of Soviet military forces in Afghanistan and the net costs of Soviet military aid, we exclude from CSE the very large direct costs of the Soviet military establishment. (As previously noted, our continuing purpose is to add to what is known about the general pattern of Soviet resource allocations, and Soviet military spending has already been extensively if inconclusively analyzed.)

There is also a theoretical reason for excluding Soviet military costs. On the one hand, it is clear that Soviet military power plays a crucial role in the empire. For example, Soviet control of its East European empire and of Afghanistan is critically dependent on the 32 and 7 active Soviet division equivalents maintained in those two regions, respectively. Furthermore, the enormous expansion of the Soviet navy and of other Soviet projection forces during the past two decades has contributed significantly to the maintenance and expansion of the empire.

On the other hand, it is also clear that the empire enhances Soviet military power. Forward basing of Soviet forces in Central and Eastern Europe provides additional warning time and improved capabilities for defense of the Soviet homeland, as well as a potential advantage for undertaking or threatening sudden, quick, and deep-strike military action against Western Europe. Furthermore, the effectiveness of Soviet naval and air forces is appreciably increased by their ability to operate from bases in Cuba, Vietnam, and Afghanistan.[2]

This situation raises an intractable problem in economic theory: that of joint products and joint costs. Where two or more products (in this case, military power, and maintenance and expansion of the empire) result from the same activity (that of the Soviet military establishment), any division of the cost of that activity among the several products is inescapably arbitrary. For that reason, although we will present estimates of total Soviet military spending as a basis for comparison with the largely nonmilitary costs of empire, we will make no attempt to assign any specific portion of the military costs as an addition to empire costs. Thus, we implicitly assume that the size, composition, and equipment of Soviet military forces, and hence their costs, are determined independently of the empire. This assumption is justified less by its compelling logic than by the arbitrariness of any attempt to impute to the empire a specific part of total Soviet military costs.

Our costing methodology has two other limitations. First, the incremental costs incurred by the Soviet Union for its support of Cuban and

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[2]See Sec. VI for a more detailed discussion of the military and strategic benefits realized from the empire.

East German allied or "proxy" forces should, in principle, be included in empire costs. However, because the available data do not permit such an attribution, the costs of such forces only appear in our CSE estimates to the extent that they are already contained in one or another of the six component cost categories. This limitation also applied to our cost estimates for 1971–1980.

Second, some allowance should, in principle, be made for economic offsets to these estimates of empire costs. The present estimates do this only to a limited extent—for example, by subtracting from the total value of Soviet military aid deliveries the portion that results in hard-currency earnings. However, no allowance has been made for certain other offsets—for example, the asset value of debts owed by parts of the empire to the Soviet Union; labor supplied to the Soviets by client states at wages below the corresponding marginal products; and direct payments to the Soviet Union from parts of the empire for services (military or technical) rendered to them. A still more elusive offset is the use of some parts of the empire, such as East Germany, as channels for acquiring Western technology.

In principle, the cost model should include all of these offset elements. However, our estimates are limited by the data available, as were our previous estimates. In any event, it is likely that such offsets would entail only modest adjustments in the estimates for 1981–1983. Moreover, any such adjustments would probably be more than compensated by other elements of empire costs that are not included, especially those mentioned earlier relating to Soviet support for Cuban and other proxy forces.

III. COSTS OF THE SOVIET EMPIRE, 1981–1983: AGGREGATE RESULTS

DOLLAR COSTS

Table 1 presents estimates of the economic costs to the Soviet Union of its empire for selected years in the 1970s and for 1981–1983, in current as well as constant dollars, covering the six cost components described above. (Details on each of the components summarized in Table 1 are discussed later, and in the footnotes to the table.) The estimates shown for 1971–1980 are almost identical to those in our prior report[1] with one exception. Estimates of military aid deliveries for the years 1978–1980 were subsequently revised upwards in 1985 by the Arms Control and Disarmament Agency.[2] The revisions increase reported Soviet military aid by approximately $300 million in 1978, $2.0 billion in 1979, and $2.8 billion in 1980; they raise our earlier estimates of total CSE between 1 percent and 2 percent in 1978, and between 6 and 8 percent in 1979 and 1980.

As indicated in Table 1, CSE in constant 1981 dollars reached a peak in 1980 (about $44.2 billion), remained at approximately the same level in 1981 (about $43.2 billion), and declined fairly rapidly thereafter to about $35.4 billion in 1982 and $28.6 billion in 1983. The decline amounted to a decrease of over 35 percent from the 1980 peak year, and an average annual rate of decline of nearly 21 percent over the following three years. The decline was due to a reduction of 40 percent to 50 percent in Soviet subsidization of its trade with Eastern Europe, which in turn resulted from a decrease of 15 to 20 percent in world oil prices, combined with a rise in the subsidized price that the Soviet Union charged on its oil exports to Eastern Europe. Despite the decline, average empire costs were substantially higher in the 1981–1983 period ($35.7 billion) than in the 1971–1980 period ($25.5 billion).

Figure 1 shows the pattern of empire costs in constant dollars for the 1981–1983 period, compared with the previous decade.[3] The vertical

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[1]See *The Costs of the Soviet Empire*, pp. 16–17.

[2]See footnote (d) in Table 1.

[3]Both curves shown in Fig. 1 are logarithmic regressions fitted to the mid-points of the range of CSE estimates for each year of the 1971–1980 and 1981–1983 periods, according to the model: $CSE_t = ae^{nt}$, where α is the rate of growth (or decline) for the t years of the respective periods, and a is the initial year intercept. In Fig. 1, asterisks are the mid-points of the original empire cost estimates, and the Ps denote the empire costs

Table 1

COSTS OF THE SOVIET EMPIRE, 1971-1983
(In billions of current dollars)[a]

Item	1971	1976	1978	1979	1980	1981	1982	1983
1. Trade subsidies	0.44– 0.97	5.78– 6.95	6.37– 8.39	9.26– 13.07	18.47– 23.69	17.55– 21.76	14.04– 18.37	9.61– 13.96
2. Trade credits[b]	1.05	1.65	2.01	4.85	6.09	9.81	6.66	6.23
3. Economic aid deliveries[c]	0.69	0.58	0.61	0.90	0.85	1.36	1.31	1.53
4. Military aid deliveries (excluding hard-currency sales)[d]	1.20	3.45	3.74	8.65	7.40	7.00	5.84	3.62
Military sales	(0.40)	(1.85)	(3.96)	(3.85)	(4.20)	(4.20)	(5.46)	(6.18)
5. Incremental military operations (Afghanistan)					0.50– 1.20[e]	0.60– 1.45[f]	0.67– 1.62[g]	0.74– 1.79
6. Covert operations and related activities[h]	1.53– 3.97	1.94– 5.06	2.14– 5.58	2.25– 5.86	2.36– 6.15	2.40– 6.30	2.50– 6.57	2.60– 6.84
7. Total CSE[i] (1+2+3+4+5+6)	4.91– 7.88	13.40– 17.69	14.87– 20.33	25.91– 33.33	35.67– 45.38	38.72– 47.68	31.10– 40.45	24.39– 34.03
8. Total CSE (in billions constant 1981 $)[j]	13.56– 21.77	20.94– 27.64	20.97– 28.67	32.11– 41.30	38.94– 49.54	38.72– 47.68	30.76– 39.98	23.87– 33.30
9. Index of U.S. export unit value (1981=100)	36.2	64.0	70.9	80.7	91.6	100	101.1	102.2

[a]Unless otherwise indicated.

[b]See text for explanation of sources and methods used for these estimates. Soviet trade subsidies to Vietnam and Mongolia not estimated due to lack of data.

[c]For 1971 through 1980, includes reported economic aid deliveries to Vietnam, North Korea, and Afghanistan, as well as aid deliveries to noncommunist less developed countries (LDCs) *net* of repayments by those countries for the period 1974 to 1980. Our economic aid figures are somewhat smaller than those appearing elsewhere because we have tried to take separate account of trade credits which other references include within economic aid, and we have also tried to distinguish between gross aid to the Third World and aid net of repayments. Other references include *Communist Aid Activities in Non-Communist Less Developed Countries, 1979 and 1954-1979*, Central Intelligence Agency, 1980; Joan P. Zoeter, "USSR: Hard Currency Trade and Payments," *Soviet Economy in the 1980s: Problems and Prospects*, Part 2, Joint Economic Committee, Congress of the United States, 1982; and other data presented in an unclassified CIA draft paper of May 1981. The 1981 through 1983 estimates include reported economic aid deliveries to Cuba, Vietnam, North Korea, Mongolia, Laos, and Kampuchea, as well as aid deliveries to noncommunist LDCs net of

Table 1—continued

repayments by those countries. The sources for these data are the CIA, *Handbook of Economic Statistics*, 1984 and 1985.

[d]Military aid deliveries have been estimated as the difference between total Soviet arms *exports* and Soviet hard-currency arms *sales* to the LDCs. This difference appears in row 4. Hard-currency arms sales are shown in parentheses below the aid figures. For 1971 through 1980, total Soviet arms exports, based on trade figures reported by individual exporting and importing countries, are presented in *World Military Expenditures and Arms Transfers 1971-1980*, Arms Control and Disarmament Agency, 1983, p. 108. Hard-currency arms sales are reported in Zoeter, op. cit. In the 1985 ACDA report, *World Military Expenditures and Arms Transfers 1985*, the 1978-1980 estimates were revised upward. These revised estimates appear here and are therefore different from the corresponding figures in our earlier report. Hard-currency arms sales for 1981 through 1983 are reported in CIA, *Handbook of Economic Statistics*, 1984 and 1985.

[e]Based on a survey of public estimates, including DIA testimony published in *Allocation of Resources in the Soviet Union and China—1980*, Joint Economic Committee, Congress of the United States, June 1980, together with an unclassified CIA estimate of $650 million for 1980 based on an unclassified May 1981 draft.

[f]Derived from 1980 costs by assuming operational costs in 1981 were 25 percent higher than in 1980.

[g]The estimates for 1982 and 1983 were derived by extrapolating from 1981, assuming that incremental costs rose proportionately with increases in Soviet troop strength, and using estimates of Soviet troops in Afghanistan for 1981, 1982, and 1983, as reported in the International Institute for Strategic Studies, *The Military Balance* for 1980-81, 1981-82, and 1982-83.

[h]Estimates for 1980 are drawn from "Preliminary Estimates of Costs Incurred by the Soviet Union for Covert Operations and Related Activities in the Soviet Empire," by Edmund Brunner (Appendix to *The Costs of the Soviet Empire*, pp. 57-66). Brunner estimated that these costs increased 63.4 percent between 1970 and 1980, an annual average compound growth rate of 5 percent. This rate was used to estimate costs for the intervening years. Brunner's estimates originally were made in rubles. The upper and lower ends of the ranges shown in row 7 correspond to higher and lower ruble/dollar conversion rates, and also convey a sense of the pervasive uncertainties that apply to this particular cost component. Estimates for 1980 through 1983 were similarly derived. For this period the estimated annual average compound growth rate was 4.2 percent which was used as the basis for deriving costs for 1981 and 1982. Note that all estimates in this category were derived from estimates in constant 1970 rubles.

[i]Because of revised estimates for military aid during 1978, 1979, and 1980, the totals for those years are slightly higher than reported in our previous report.

[j]CSE in current dollars (row 7) are converted to constant 1981 dollars using the unit value index of U.S. exports (row 9), from International Monetary Fund, *International Financial Statistics*, May 1983, and *International Financial Statistics Yearbook*, 1979. This index was used for the following reasons: (a) the real value of CSE to the Soviet economy depends on Soviet *imports* forgone as a result of these costs; (b) Soviet hard-currency imports are heavily weighted by grain and advanced technology products, which are also heavily weighted in U.S. exports. An alternative deflator, representing changes in unit values of Soviet exports, might also be used to convert the row 7 CSE into constant 1981 dollars. Use of the unit value of imports index of non-OPEC developing countries for this purpose does not appreciably affect the results.
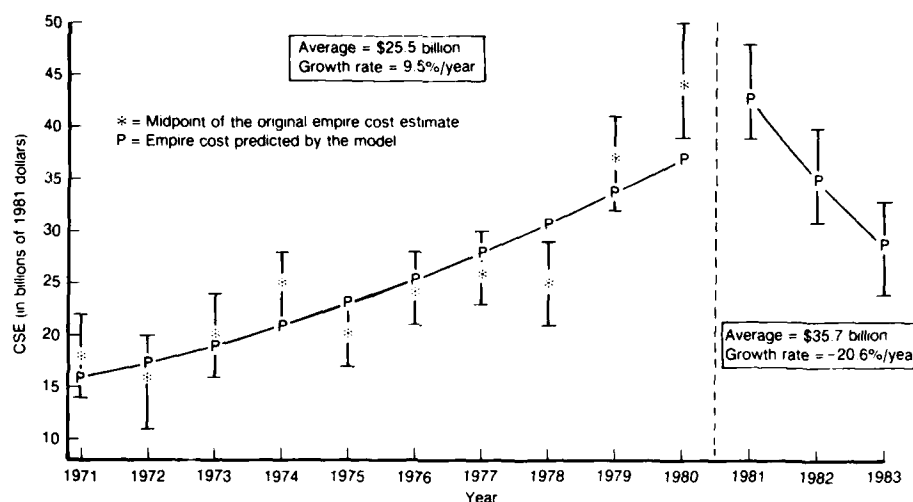
Fig. 1—Costs of the Soviet empire in billions of constant 1981 dollars,
1971–1983

bands above and below the curves in Fig. 1 indicate the range of our
estimates for each individual year.

RUBLE COSTS

Before sizing the estimates of total empire costs in relation to Soviet
GNP and Soviet military spending, it is appropriate to convert the cost
estimates into rubles. The relative size of empire costs changes sharply
when the data are expressed in rubles rather than dollars, because of
the persistent overvaluation of the Soviet foreign trade ruble
throughout this period. The conversion method used in arriving at the
ruble estimates, illustrated in Fig. 2, is the same as that employed in
our previous study.[4]

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predicted by the model. The same exponential growth model is used for fitting all of the
curves presented in this report. All of the estimated growth (or decline) coefficients
shown in the report are significant at the 1 percent level, and the adjusted R-squares are
0.8 or higher.

[4]The conversion methodology is based on a technique developed by Professor
Vladimir Treml. (See *The Costs of the Soviet Empire*, p. 22ff, and V. Treml and B. Kos-
tinsky, "Domestic Value of Soviet Foreign Trade: Exports and Imports in the 1972
Input-Output Table," *Foreign Economic Report*, No. 20, U.S. Department of Commerce,
Bureau of the Census, Washington, D.C., 1982.)
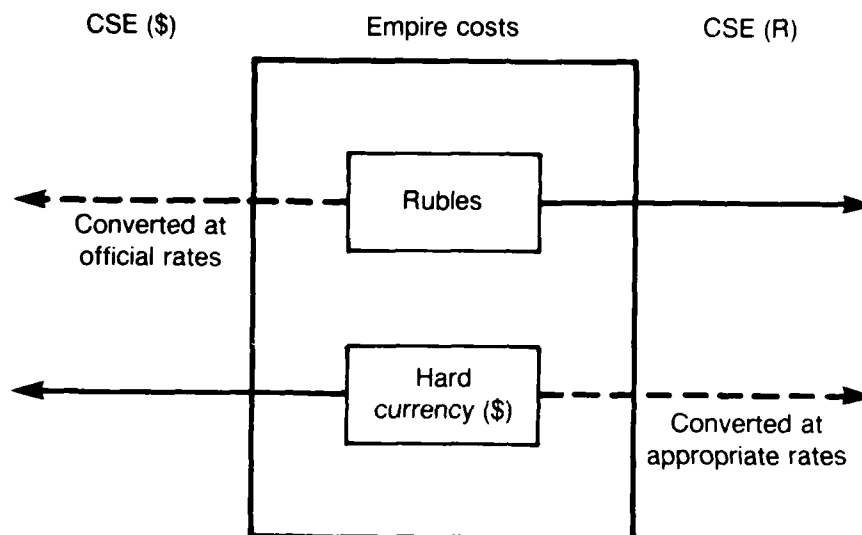
Fig. 2—Converting dollar costs to ruble costs

Empire costs have both ruble and hard-currency components as shown in Fig. 2. In estimating empire costs in dollars (CSE), hard-currency (dollar) components of total empire costs are added to the ruble components, which are converted to dollars at the official rate of exchange between the foreign trade ruble and the dollar. In making ruble estimates of empire costs (CSE(R)), the ruble components are added to the hard-currency components, and the latter are converted into rubles at more realistic rates of exchange: namely, rates that represent the average ratio between the ruble costs and the dollar costs of imports into the Soviet Union in each year of the period. In our previous study, we calculated se₁ arate ruble-dollar exchange rates for each year from 1971 to 1980. For the estimates of empire costs for 1981 through 1983, we have used the 1980 average ratio between ruble costs and dollar costs of Soviet imports on the assumption that the ratio in each of the three years was approximately the same as it was in 1980.[5]

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[5]Although the Soviet price reform of 1982 may have changed domestic Soviet prices relative to foreign trade prices, we concluded that this change is probably small, and therefore did not warrant new computations of the foreign trade ruble-dollar price ratios for 1981-1983. We discussed this point with Vladimir Treml, whose judgment conforms

The hard-currency part of empire costs represents forgone hard-currency imports. Such imports are sold to producers and consumers within the Soviet Union at considerably higher ruble prices than those implied by the official ruble-dollar rate. For example, machinery imported from the West for, say, $5 million may appear in Soviet foreign trade statistics as 3.5 million rubles at the prevailing official ruble-dollar exchange rate of 0.7; the same machinery may subsequently be sold to state enterprises within the Soviet Union for perhaps 7.0 million rubles, an implicit exchange rate of 1.4 rubles per dollar.

Hence, it is appropriate to convert the hard-currency part of CSE into rubles at rates reflecting what the imports actually would have yielded if sold in the Soviet Union. This conversion procedure is applied to two hard-currency components of the empire costs in Table 1—trade subsidies and net military aid—to arrive at the ruble cost estimate.

Table 2 shows the hard-currency costs of the Soviet empire in relation to total Soviet hard-currency ,urces and uses for the 1981–1983 period, and for selected years in the preceding decade. As indicated in Table 2, the hard-currency components of empire costs declined in the 1981–1983 period, as a result of the substantial reduction in trade subsidies (due to higher prices charged for Soviet oil exports to the CMEA countries). When the hard-currency components of empire costs are converted into rubles according to the procedure represented in Fig. 2, the ruble costs of empire turn out to be much larger than the dollar costs, relative to Soviet GNP.

Table 3 shows the ruble empire costs. Total empire costs in constant 1980 rubles rose from about 8.6 billion in 1971 to approximately 45.9 billion in 1980, representing an average annual growth rate of 17.2 percent.[6] By 1983, total empire costs in constant 1980 rubles had declined to about 27.5 billion, representing a 40 percent decrease. The annual rate of decrease, for the three-year 1981–1983 period was –24.9 percent. For the 1971–1980 decade, average annual CSE(R) was 21.4 billion rubles; between 1981 and 1983 the average was 36.0 billion rubles.

Although empire costs are thus relatively larger when the calculations are made in ruble rather than dollar terms, the time pattern is

to that expressed in the text. Treml's original calculations compared the value of *all* imports priced at their internal ruble prices with their dollar value based on the official foreign trade ruble-dollar ratio. If it were possible to separate hard-currency imports from soft-currency imports, the resulting ruble-dollar ratio for the hard-currency imports alone might well be higher than the average figure based on total Soviet imports.

[6] The ruble estimates for 1980, and hence the growth rate calculations, are slightly higher (about 10 percent) than the corresponding estimates in our previous report, because of the upward revisions in the ACDA estimates of Soviet military aid deliveries for the 1978–1980 period, referred to above.

Table 2

HARD-CURRENCY COSTS OF THE SOVIET EMPIRE, 1971–1983

(In billions of current dollars)

Item	1971	1976	1978	1979	1980	1981	1982	1983
1. Total CSE	6.39	15.54	17.60	29.62	40.53	43.20	35.70	29.15
Hard-currency CSE:								
2. Trade subsidies	0.70	6.37	7.38	11.17	21.10	19.66	16.21	11.79
3. Military aid[a]	1.20	3.45	3.74	8.65	7.40	7.00	5.84	3.62
4. Total, rows 2 and 3	1.90	9.82	11.12	19.82	28.50	26.66	22.05	15.41
5. As share of total CSE (row 4/row 1) (%)	29.7	63.2	63.2	66.9	70.3	61.7	61.8	52.9
6. Total Soviet hard-currency supplies and uses	4.42	17.80	19.99	27.85	30.25	37.82	32.60	35.68
7. Hard-currency component of CSE as ratio to total hard-currency supplies/uses (row 4/row 6) (%)	43.0	55.2	55.6	71.2	94.2	70.5	67.6	43.2

SOURCE: See Table 1. Figures in Rows 1 and 2 are the arithmetic averages of the corresponding ranges for each year shown in Table 1. The figures in Row 6 are from Gregory Grossman and Ronald Solberg, *The Soviet Union's Hard Currency Balance of Payments and Creditworthiness in 1985*, The Rand Corporation, R-2956-USDP, April 1983; and Central Intelligence Agency, *Handbook of Economic Statistics*, 1982 and 1985. The hard-currency figures for 1971 and 1972 were estimated by interpolation between the 1970 total ($3.10 billion) and the 1973 figure shown in the CIA *Handbook*. Hard-currency supplies include proceeds from oil and other exports to hard-currency countries, arms sales, gold sales, and hard-currency borrowing. Hard-currency uses include imports of grain and other commodities from the West, debt service, hard-currency lending, aid, and errors and omissions.

[a]Note that the figures for 1978 through 1980 differ from those in our earlier report, as explained in footnote (d) of Table 1.

similar in the two calculations. As Fig. 3 indicates, the decline in empire costs over the 1981–1983 period occurred at an annual rate of nearly 25 percent for the ruble calculations, compared with 21 percent for the dollar calculations shown in Fig. 1. Empire costs in 1983 for both the ruble and dollar calculations reached approximately the same lower levels previously incurred in 1978–1979 for both sets of calculations.[7]

[7]The pattern shown (Figs. 1 and 3) for both the dollar and ruble empire costs between 1978 and 1983 displays a pagoda-like shape, with bimodal peaks attained in 1980 and 1981, and the 1982–1983 figures declining to approximately the same levels previously reached in 1978–1979.

Table 3

COSTS OF THE SOVIET EMPIRE, 1971–1983

(In billions of current and constant rubles)[a]

Item	1971	1976	1978	1979	1980	1981	1982	1983
1. Trade subsidies	0.94– 2.06	9.21– 11.08	9.84– 12.95	13.20– 18.62	24.90– 31.93	23.66– 29.33	18.93– 24.76	12.95– 18.82
2. Trade credits	0.94	1.24	1.37	3.17	3.95	7.05	4.84	4.63
3. Economic aid deliveries	0.62	0.44	0.42	0.59	0.55	0.98	0.95	1.14
4. Military aid deliveries[b]	2.55	5.50	5.77	12.33	9.98	9.44	7.87	4.88
5. Military operations in Afghanistan					0.32– 0.78	0.43– 1.04	0.49– 1.18–	0.55– 1.33
6. Covert operations and related activities[c]	1.61	2.05	2.26	2.37	2.50	2.55	2.66	2.77
7. Total CSE	6.66– 7.78	18.44– 20.31	19.66– 22.77	31.66– 37.08	42.20– 49.69	44.11– 50.39	35.74– 42.26	26.92– 33.57
8. Total CSE (in billion constant 1980 rubles)	7.93– 9.26	20.27– 22.32	20.61– 23.87	32.41– 37.95	42.20– 49.69	42.29 48.31	32.34– 38.24	24.52 30.57
9. GNP deflator (1970=100)	101.6	110.0	115.3	118.1	120.9	126.1	133.6	132.7

SOURCE: CSE in dollars from Table 1, converted to rubles, using the official ruble-dollar foreign trade exchange rate for the non-hard-currency components of CSE, and using the average ratio between Soviet imports in current domestic ruble prices and Soviet imports in U.S. dollars for each year from 1971–1980 for the hard-currency part of CSE (see V. Treml, *Soviet Dependence on Foreign Trade*, NATO-Economics Directorate, Brussels, 1983, p. 6). For 1981–1983, the ruble conversions are based on the ruble-dollar import price ratio prevailing in 1980, as discussed in the text. To obtain the constant 1980 ruble estimates of row 8, we used the Soviet GNP deflator through 1980 derived from CIA, *Soviet GNP in Current Prices 1960–1980*, 1983. For 1981 through 1983, the GNP deflator was derived by estimating Soviet GNP in both current and constant prices for those years using the method described in footnote (b) of Table 5. Since the original estimates of costs associated with covert operations and destabilization activities (row 6) were in rubles, we have used these figures here. Hence, the range of dollar estimates for the corresponding row of Table 1 is avoided because ruble conversions using alternative exchange rates are not necessary.

[a]Unless otherwise indicated.

[b]As with the corresponding dollar estimates, the figures for 1978 through 1980 are higher than those in our earlier report, as explained in footnote (d) of Table 1.

[c]The figures in this category appear in constant 1970 rubles.

Figure 3 shows the time path of the constant ruble figures, together with the average level of empire costs in rubles for the 1981–1983 period, compared with the average for the 1971–1980 period, as well as the positive and negative growth rates for empire costs for the earlier and later periods, respectively.
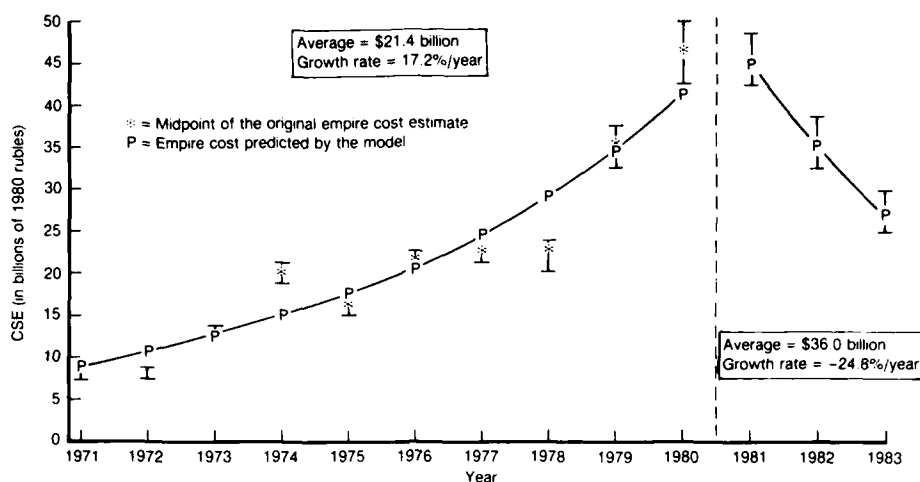
Fig. 3—Costs of the Soviet empire in billions of constant 1980 rubles,
1971–1983

With respect to the aggregate cost estimates, it is worth noting that
the ruble estimates are probably more significant than the dollar ones,
for two reasons: First, the method used in converting the hard-
currency components of empire costs into rubles results in more accu-
rate estimates of the real economic costs of the empire than the esti-
mates obtained by using the official exchange rate to arrive at the dol-
lar estimates; and second, the Soviet leadership probably thinks in
terms of rubles, not dollars, in its decisionmaking.

This does not imply that hard-currency sources and uses do not
merit the attentive concern of the leadership. In fact, the method used
in our conversion of hard currency to rubles reflects the particular
importance of hard-currency earnings to finance Soviet imports from
the West.

EMPIRE COSTS COMPARED WITH SOVIET GNP AND MILITARY SPENDING

To size Soviet empire costs, it is useful to compare them with Soviet
GNP and Soviet military spending. This is done for the ruble and dol-
lar empire costs in Table 4 and Table 5, respectively, for 1981–1983
and for selected years in the previous decade.

Table 4

SOVIET EMPIRE COSTS COMPARED WITH SOVIET GNP
AND MILITARY SPENDING, 1971-1983

(In billions of current rubles)

	Item	1971	1976	1978	1979	1980	1981	1982	1983
1.	Total CSE[a]	6.66– 7.78	18.44– 20.31	19.66– 22.77	31.66– 37.08	42.20– 49.69	44.11– 50.39	35.74– 42.26	26.92– 33.57
2.	GNP[b]	404.6	529.8	592.8	612.0	635.2	675.4	733.9	756.4
3.	Soviet military spending[c]	50.8	68.2	73.8	79.1	84.6	87.8	95.4	98.3
4.	CSE as ratio to GNP (row 1/row 2) (%)	1.64– 1.92	3.48– 3.83	3.32– 3.84	5.17– 6.06	6.64– 7.82	6.53 7.46	4.87 5.76	3.56 4.44
5.	CSE as ratio to military spending (row 1/row 3) (%)	13.11– 15.31	27.04– 29.78	26.63– 30.85	40.03– 46.88	49.88– 58.74	50.24 57.39	37.46– 44.30	27.39 34.15

[a]From Table 3.

[b]Figures for 1971 through 1980 derived from Soviet GNP in 1970 rubles converted to current rubles using Soviet GNP deflator based on premise that deflator rose 1.6 percent per annum during 1971-1976 and 2.4 percent per annum during 1977-1980. See *USSR: Measures of Economic Growth and Development, 1950-1980*, Joint Economic Committee, Washington, D.C., 1982, p. 54; and CIA, *Soviet GNP in Current Prices, 1960-1980*, 1983, p. 6. For 1981 through 1983, the figures for current GNP were derived by estimating the growth of Soviet GNP in current prices based on CIA estimates of real GNP growth and the Consumer Price Index (1980 = 100) as a measure of inflation (CIA, *Handbook of Economic Statistics*, 1985, pp. 39, 53), and using that current price growth rate to extrapolate from the original 1980 estimate. If, instead of using the CIA estimates of real GNP growth, we use the growth rate of Soviet GNP in constant (1984) dollars to estimate Soviet GNP growth in current prices, the corresponding current GNP figures are 664.0 billion rubles in 1981, 713.2 billion rubles in 1982, and 726.5 billion rubles in 1983. The relatively narrow range of the estimates provided by the two different methods is reassuring, in light of the general uncertainty of such calculations. In addition, when GNP in 1982 prices was derived in another manner, by assuming that the same relationship between Net Material Product and GNP that prevailed in 1976 and 1980 still applied in 1982, the rough estimate was 720 billion rubles, which falls nicely within the range discussed above.

[c]Soviet military spending estimated using same sources and procedures described in note (b) above. For 1981-1983, military spending was assumed to be 13 percent of GNP. See also Table 5, footnote (c).

Figure 4 shows the time path for the ratios of ruble empire costs to GNP and to military spending, together with the corresponding logarithmic regressions and compound growth rates for these ratios that result from splitting the 1971-1983 period into two segments: the first segment covering 1971-1980, when empire costs generally increased as a ratio to GNP and to military spending; and the second segment covering 1981-1983, when these ratios decreased significantly.

Table 5

SOVIET EMPIRE COSTS COMPARED WITH SOVIET GNP
AND MILITARY SPENDING, 1971–1983
(In billions of current dollars)

	Item	1971	1976	1978	1979	1980	1981	1982	1983
1.	Total CSE[a]	4.91– 7.88	13.40– 17.69	14.87– 20.33	25.91– 33.33	35.67– 45.38	38.72– 47.68	31.02– 40.37	24.33– 33.97
2.	Soviet GNP[b]	573	978	1161	1278	1418	1594	1727	1834
3.	Soviet military spending as % of Soviet GNP[c]	12	13	12	13	14	13	13	13
4.	CSE as ratio to GNP (row 1/row 2) (%)	0.86– 1.37	1.37– 1.81	1.28– 1.75	2.03– 2.61	2.52– 3.20	2.43– 2.99	1.80– 2.34	1.33– 1.85
5.	CSE as ratio to military spending (row 4/row 3) (%)	7.17– 11.42	10.54– 13.91	10.67– 14.58	15.62– 20.08	18.00– 22.86	18.69– 23.00	13.85– 18.00	10.23– 14.23

[a]From Table 1.

[b]For 1971 through 1980, estimates of Soviet GNP in current dollars were developed using the following procedure: (1) completing for the 1971–1980 period the published CIA GNP figures in constant 1981 dollars by interpolating the missing years 1971–1974 and 1976, using the real GNP growth rates for those years reported by the CIA (*Handbook of Economic Statistics*, CIA, September 1982, pp. 38, 42); (2) converting the constant dollar series to current dollars by employing a U.S. GNP price deflator with 1981 as the base year (Joint Economic Committee, *Economic Indicators*, October 1982, p. 2, and *Handbook of Economic Statistics*, 1982, p. 39). For 1981 through 1983 Soviet GNP in current dollars was derived by converting the constant 1984 dollar series (CIA, *Handbook of Economic Statistics*, 1985, p. 35) to current dollars, using the U.S. GNP price deflator with 1970 as the base year (*HES*, p. 36). This procedure involves an obvious flaw because consumption expenditures constitute a larger share of U.S. than Soviet GNP (71 percent, rather than 53 percent), while fixed investment constitutes a much smaller share (12 percent rather than 35 percent). Although we could compute a GNP deflator with Soviet end-use weights, the effect of doing so would be very slight because the separate price deflator for total personal consumption expenditures and for nonresidential fixed investment expenditures in the United States moved at rates similar to one another and to the GNP deflator. Changing the expenditure weights would thus not affect the deflators that we used sufficiently to warrant calculating an adjusted GNP deflator. In the year (1975) for which the deflator adjustment would be largest using Soviet end-use weights, the discrepancy is less than 1.6 percent of the U.S. GNP deflator.

[c]For 1971 through 1980 the figures are reported in the Annual Report of the Secretary of Defense, Fiscal Year 1983, II-28. For 1981 through 1983 the figures are reported in the CIA, *Handbook of Economic Statistics*, 1985, p. 64.
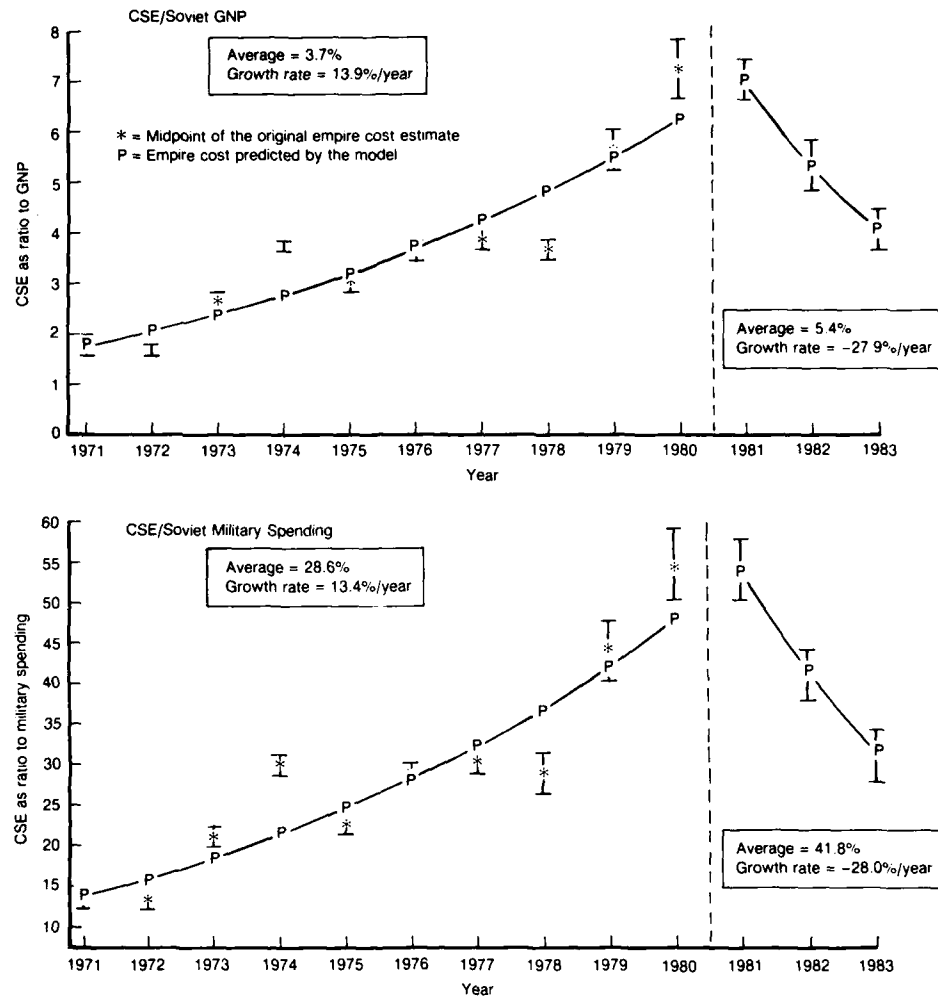
Fig. 4—Ruble costs of the Soviet empire compared with GNP
and military spending, 1981–1983

The vertical lines above and below the fitted curves in Fig. 4 show the ranges of the annual estimates (from Table 3) whose mid-points were used in fitting the regressions.

As Table 4 indicates, CSE(R) rose as a proportion of Soviet ruble GNP from approximately 1.8 percent in 1971 to a peak of about 7.2 percent in 1982, remained at nearly that peak level in 1981, and declined sharply thereafter to 4.0 percent by 1983. For the 1971–1980 decade, the average ratio of empire ruble costs to ruble GNP was 3.7 percent; between 1981 and 1983, the average was 5.4 percent. (The dollar average was 2.1 percent. For reasons noted earlier, these ruble ratios are considerably higher than the corresponding ones in which the calculations were made in dollars.)

A similar pattern results when empire costs are sized in relation to military spending. In rubles, this ratio rose from approximately 14.2 percent in 1970 to about 54.3 percent in 1980, declining sharply thereafter to 30.8 percent in 1983. Despite this decline, the average ratio of ruble empire costs to military spending was higher in the 1981–1983 period (41.8 percent) than in the 1971–1980 period (28.6 percent).

In sum, total Soviet empire costs peaked in 1980, declined slightly in 1981, and fell more sharply in 1982 and 1983. The same pattern applies to the ratios between empire costs and Soviet GNP and Soviet military spending: These ratios peaked at about 7 percent and 54 percent, respectively, in 1980, declining thereafter to 4 percent by 1983 for the ratio of ruble empire costs to GNP, and to 31 percent for the empire cost ratio to military spending. (For reasons discussed above, the corresponding dollar ratios are only about one-half the ruble ratios.)

That Soviet empire costs declined in the 1981–1983 period compared with the 1971–1980 period is no more significant than that these costs remained substantial, both in absolute terms as well as in relation to Soviet GNP and military spending.

IV. COMPONENT COSTS OF THE SOVIET EMPIRE

While the aggregate costs of the Soviet empire were decreasing in the 1980–1983 period, their composition was also changing. As Table 6 indicates, the proportion of total empire costs represented by trade subsidies decreased markedly: from 52 percent in 1980 to 40 percent in 1983 in terms of dollars; and from 62 percent to 53 percent in terms of rubles. Trade credits represented a rising proportion of total costs, increasing from 15 percent of the total in 1980 to 21 percent in 1983 in dollars, and from 9 percent in 1980 to 15 percent in 1983 in rubles.

Military aid, representing the difference between total military deliveries and hard-currency sales, was a declining proportion of total empire costs. Although total military deliveries remained high (between $10 billion and $11 billion), the proportion represented by hard-currency sales rose sharply. (See Table 1.) Hence, the remainder of military deliveries, which constitutes the aid portion, fell: from 18 percent of total empire costs in 1980 to 12 percent in 1983, in dollars; and from 22 percent in 1980 to 16 percent to 1983, in rubles.

During the 1981–1983 period, all of the other components of empire costs (incremental costs of Soviet military operations in Afghanistan, economic aid, and Soviet covert and related destabilization activities) increased both in absolute amounts and as proportions of total empire costs, in dollars as well as rubles.

Table 6 shows the changing proportions of total empire costs in dollars and rubles represented by the six cost components, for selected years between 1971 and 1983.

TRADE SUBSIDIES

The Soviet Union provides implicit trade subsidies to its trading partners when it exports commodities at prices below those on world markets, and imports commodities (typically manufactured products from Eastern Europe and sugar from Cuba) at prices above those on world markets. Table 7 provides estimates of these subsidies in Soviet trade with Eastern Europe and Cuba between 1981 and 1983.[1]

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[1]For estimates of trade subsidies for 1971–1980, see *The Costs of the Soviet Empire*, pp. 28–31. Rand research on this subject is being conducted by Keith Crane.

Table 6

COMPOSITION OF SOVIET EMPIRE DOLLAR COSTS, 1971-1983
IN DOLLARS AND RUBLES

Cost Component	1971	1975	1980	1981	1982	1983
Costs in Dollars						
Trade subsidies (%)	11.0	45.5	52.0	45.5	45.4	40.4
Trade credits (%)	16.4	2.9	15.0	22.7	18.7	21.4
Economic aid (%)	10.8	4.6	2.1	3.1	3.7	5.2
Military aid (%)	18.8	20.1	18.3	16.2	16.4	12.4
Afghanistan operations (%)	—	—	2.1	2.4	3.2	4.3
Covert and destabilization activities (%)	43.0	26.9	10.8	10.1	12.7	16.2
Total empire costs (in billions of current dollars)	6.40	12.45	40.53	43.20	35.70	29.15
Costs in Rubles						
Trade subsidies (%)	20.8	56.9	61.8	56.1	56.0	52.5
Trade credits (%)	13.0	1.8	8.6	14.9	12.4	15.3
Economic aid (%)	8.6	2.8	1.2	2.1	2.4	3.8
Military aid (%)	35.3	25.1	21.7	20.0	20.2	16.1
Afghanistan operations (%)	—	—	1.2	1.6	2.1	3.1
Covert and destabilization activities (%)	22.3	13.3	5.4	5.4	6.8	9.2
Total empire costs (in billions of current rubles)	7.22	14.61	45.95	47.25	39.00	30.25

SOURCE: Table 1.

The first estimate for Eastern Europe is by Marrese and Vanous (henceforth cited as M-V). It reflects the opportunity cost to the Soviet Union of trading with Eastern Europe at other than world-market prices.[2] The opportunity cost, or subsidy, is estimated by computing dollar/ruble price ratios for Soviet trade in six commodity groups: machinery, arms, raw materials, fuels, foodstuffs, and manufactured consumer goods. These ratios are derived by calculating implicit prices for Soviet exports to developed Western countries and

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[2]Michael Marrese and Jan Vanous, "Soviet Trade Relations with Eastern Europe, 1970-1984," paper presented to the Conference on the Soviet Union and Eastern Europe in the World Economy, October 1984, Kennan Institute for Advanced Russian Studies, Washington, D.C., revised November 1985.

Table 7

SOVIET TRADE SUBSIDIES TO EASTERN EUROPE AND CUBA, 1981-1983
(In billions of current dollars)

Area	1981	1982	1983
Eastern Europe			
Bulgaria	3.35	2.62	1.77
Czechoslovakia	4.26	3.29	2.54
East Germany	4.89	3.90	2.86
Hungary	1.99	1.72	1.19
Poland	3.90	2.94	2.16
Romania	0.31	0.34	0.38
Total, Marrese-Vanous estimate	18.74	14.78	10.86
Rand estimate	14.53	10.45	6.51
Cuba			
Sugar	1.37	2.58	2.80
Petroleum	1.66	1.01	.30
Nickel	0	0	0
Total	3.02	3.59	3.10

SOURCES: For Eastern Europe: Michael Marrese and Jan Vanous, "Soviet Trade Relations with Eastern Europe, 1970-1984," paper presented to the Conference on the Soviet Union and Eastern Europe in the World Economy, *October 1984*, Kennan Institute for Advanced Russian Studies, Washington, D.C., revised November 1985. Cuban estimates: Directorate of Intelligence, Central Intelligence Agency, *The Cuban Economy: A Statistical Review*, June 1984, p. 40.

NOTE: Differences between the totals and the country components are due to rounding of the component figures.

to various socialist countries, and using the ratio between these prices to obtain an exchange rate for each commodity group.[3] The same

[3]Implicit prices are calculated using the formula $v_i / q_i = p_i$, where v_i equals the value of exports of commodity i; q_i, exports by volume; and p_i, the implicit price. Exchange ratios are calculated using the formula $R_{ij} = p_{iDW} / p_{ij}$ where R_{ij} equals the exchange coefficient for the ith commodity in trade with the jth socialist country, p_{iDW} equals implicit prices in trade with the developed Western industrialized countries, and p_{ij} implicit prices with the jth socialist country. Exchange rates for each commodity group, E_{jk}, are derived by weighting the exchange ratios for each commodity by its share in the value of total exports (or imports) in the commodity group, i.e., E_{jk} = the sum of $R_{ijk} \times v_{ijk} / v_{jk}$, where v_{ijk} equals the value of exports (or imports) of the ith commodity in the kth commodity group by the jth country, and v_{jk} equals total exports (or imports) in the kth commodity group. Thus, the commodity group exchange rate for each commodity group is the weighted average of the exchange ratios of each commodity in the group. The reliability of the exchange rate estimates depends on the share of commodities in the group for which exchange ratios can be computed, and on the degree to which

procedure is used for imports. M-V then use these ratios, or exchange rates, to convert trade flows to the East European countries into dollars. For example, Soviet energy exports are converted to dollars using the implicit exchange rate for fuels, and machinery exports are converted using a different rate for machinery. Soviet imports in dollars are then subtracted from exports in dollars to obtain a dollar trade balance. If ruble trade is in balance, the resulting balance in dollars equals the subsidy: that is, the difference in the dollar value of ruble trade-flows. If trade is not balanced, the ruble trade balance has to be removed before the subsidy is computed. This is done by converting the ruble trade deficit to dollars using the dollar value of a "market basket" of Soviet ruble imports from each East European country.[4] The dollar value of the deficit is then subtracted from the dollar trade balance, and the resulting difference equals the subsidy.[5]

The second estimate for Eastern Europe in Table 7 is by Rand. It was computed using the same data and methodology as M-V, but employs slightly different assumptions about the value of Soviet-East European trade in manufactures. In their 1983 study,[6] M-V employed an arbitrary assumption that the value of manufactured products exported by Eastern Europe was only 50 percent of that of similar commodities exported by the West, reflecting the generally lower quality of East European exports. Because we believed that figure to be exaggerated, in our earlier Rand study of Soviet empire costs we raised

the commodities traded by the Soviet Union in East European and OECD markets are similar. Consequently, M-V's exchange rates for raw materials and energy are much more reliable than the rates estimated for trade in machinery.

[4]The weighted average dollar value of a ruble of Soviet imports from the country.

[5]An example can help to clarify this procedure. Suppose Poland imports 1 billion rubles of fuel and 1 billion rubles of machinery from the Soviet Union and exports 1.5 billion rubles of machinery in return. M-V obtain a dollar equivalent for Soviet fuel exports by multiplying 1 billion rubles worth of fuel by the dollar/ruble exchange rate for fuel, say, two. They do the same for machinery, using instead the dollar/ruble exchange rate for machinery, say, 0.5. The dollar value of Soviet exports would then be $2 billion for energy plus $500 million for machinery, for a total of $2.5 billion. The same procedure is used to calculate the value of Polish exports to the USSR. Assuming the same exchange rates, those exports would be worth $750 million. If ruble trade were in balance, the difference between $2 billion and $750 million equals the subsidy. In this case trade is not balanced. Hence, something must be done to allow for Poland's ruble trade deficit. M-V convert this deficit into dollars, and subtract it from the subsidy, on the arguable premise that the credit which covers the deficit will eventually be repaid. The deficit is converted using the value of a ruble of a market-basket of Soviet imports from the particular Soviet trading partner. In our example, this ruble value equals 0.5. So the dollar value of Poland's trade deficit is 500 million rubles times 0.5, or $250 million. Thus, the total subsidy is $2.5 billion (Soviet exports), minus $750 million (Soviet imports), minus $250 million (the dollar value of the deficit), for a total of $1.5 billion.

[6]Michael Marrese and Jan Vanous, *Soviet Subsidization of Trade with Eastern Europe*, University of California, Berkeley, 1983.

it to 70 percent (a discount of only 30 percent).[7] In subsequent work, M-V have attempted to construct dollar/ruble ratios for East European-Soviet trade in manufactures.[8] They note, however, that these ratios are less reliable than those for other commodity groups because of the greater degree of heterogeneity among manufacturers. Furthermore, these estimates were made for one year only, 1982, and were deflated by Hungarian and Polish price indices for socialist and nonsocialist trade. Because of the potential margin of error in the recent M-V estimates, the Rand estimates in Table 7 continue to use the lower 30 percent discount on manufactured goods that we employed in our earlier study.

These dollar/ruble ratios for machinery trade are important for determining the size of the subsidy. Soviet trade subsidies to Eastern Europe have often been labeled "oil price subsidies" because, for much of the 1970s, the ruble prices of Soviet oil exports to Eastern Europe were substantially below world-market prices when the latter were calculated at the official rate of exchange. However, since the transferable ruble is inconvertible, the exchange rate is of limited relevance in determining the magnitude of the subsidy. The real source of the trade subsidy is the difference in relative prices between the two markets. In CMEA trade, machinery has a higher price relative to raw materials and energy than it does on the world market. These differences in relative prices have declined in recent years as dollar prices of energy in world markets have fallen while its ruble prices have risen in the CMEA, in accord with the five-year moving-average formula used to calculate prices for Soviet oil exports to the East European members of CMEA. However, the disparities are still substantial, as indicated by the estimates in Table 7.[9] That the net subsidies declined substantially in the 1981–1983 period from the levels reached in the late 1970s was—as noted earlier—principally due to a decrease by 15 to 20 percent in world oil prices in real terms, while the prices charged by the Soviet Union for its oil exports to Eastern Europe were rising in accord with the CMEA moving-average formula.

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[7]See *The Costs of the Soviet Empire*, pp. 29–31.

[8]Marrese and Vanous, 1985.

[9]Van Brabant (1984) notes that part of these "subsidies" stems from fortuitous investments by the East Europeans, not Soviet acceptance of unfavorable terms of trade. Czechoslovakia and the German Democratic Republic each provided a 500 million ruble trade credit to the Soviet Union in the late 1960s. Terms of repayment included 5 million tons of oil at a fixed price of 15 rubles per ton until 1982. Czechoslovakia and the GDR benefited handsomely from this investment, but their gain was not a Soviet subsidy. See J. M. Van Brabant, "The Global Economic Recession and Socialist Economic Integration in the 1980's," *Osteuropa-Wirtschaft*, 29, 3, 1984.

The Soviet Union has also provided Cuba with substantial price subsidies.[10] In 1975, the Soviet Union attempted to eliminate Cuba's perennial trade deficit by setting prices above world-market levels for sugar, Cuba's major export, and below world-market levels for oil, its major import. Subsequently, the ratio between the two prices was fixed so that changes in oil and sugar prices would not affect Cuba's barter terms of trade with the Soviet Union. Prices were also set for nickel, Cuba's second largest export to the Soviet Union, but this pegging has since been abandoned. Between 1980 and 1983, world prices for sugar actually fell more (about 50 percent) than did world oil prices (10 to 15 percent). Consequently, Soviet subsidization of Cuban trade was implicitly borne more by paying a premium price for sugar imports rather than charging a discount price for Soviet oil exports. The resulting subsidies on Cuban trade were shown in Table 7.

In the past, the Soviet Union provided its Third World allies, especially Cuba and Vietnam, with oil price discounts similar to those given to Eastern Europe. Just as the discounts to Eastern Europe largely disappeared as of 1983 (when ruble prices are converted at the official rate of exchange), they may also be vanishing in trade with Cuba, Vietnam, and other parts of the Soviet empire in the Third World. The ruble value of Soviet exports of petroleum to Vietnam rose 25 percent between 1982 and 1983, to Kampuchea—51 percent, to Laos—52 percent, and to Mongolia—35 percent. Although the volume of oil exports may have increased, these increases in value are also consistent with the price hikes imposed on Eastern Europe during this period, indicating that the Soviet Union may have reduced the cushion it provides its Third World allies through pricing oil exports below world-market levels. In short, with the exception of Cuba and perhaps Vietnam, the Soviet Union has probably reduced price subsidies in trade with its Third World allies. However, these reductions may have been partly offset by a Soviet decision to allow these countries to increase their trade deficits with the Soviet Union. As an indication, Soviet trade surpluses with Vietnam, Kampuchea, Laos, and Afghanistan have increased since 1980.[11]

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[10]CIA, 1984.

[11]*Vneshniaia torgovlia SSSR: statisticheskii sbornik (Soviet Foreign Trade: Statistical Yearbook)*, Moscow, various years.

TRADE CREDITS

In our earlier study, Soviet trade surpluses with Eastern Europe and the Third World were viewed as grants: We assumed that recipients would not repay Soviet credits advanced to cover the surpluses.[12] The figures in Table 8 are a continuation of these earlier estimates, based on the same assumption. The table includes all countries that have run an annual deficit of over $10 million with the Soviet Union since 1980. Ruble deficits were converted into dollars using the official Soviet rate of exchange. It is noteworthy that while trade subsidies to Eastern Europe declined in the early 1980s compared with the late 1970s, Soviet ruble trade surpluses with these countries were substantially higher in the first three years of the 1980s compared with the last three years of the 1970s. Thus, during the early 1980s, one form of assistance was partially substituted for another.

An alternative way to look at Soviet trade assistance is to assume that trade credits will be repaid, but on terms that are subsidized by the Soviet Union. This approach would then entail measurement of the net subsidy component in credits advanced by the Soviet Union to cover the trade deficits of certain of its trading partners. These subsidies are provided in two different ways: first, through dollar loans at less than commercial rates of interest (this type of loan characterizes Soviet project finance in many Third World countries, including Ethiopia, Angola, and South Yemen); and second, through low-interest ruble loans, which involve large implicit subsidies through the interest rate differential, as well as through the use of these credits to purchase goods priced below world-market prices, which are repaid with goods priced above world-market levels. (Such implicit subsidies have been provided not only to members of the CMEA, but also to Syria, India, and Egypt.) Preliminary estimates of the total subsidies of both types in Soviet trade credits indicate their consequential scale: $8.18 billion in 1981, $5.06 billion in 1982, and $3.21 billion in 1983.[13] Thus, the subsidy element in Soviet trade credits amounts to about 70 percent as much as the total Soviet trade balances shown in Table 8, for this period.

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[12]See *The Costs of the Soviet Empire*, pp. 31–35.

[13]These estimates are in 1984 dollars. More detailed analysis of these forms of subsidy and the measurement of the subsidy component in such Soviet credit extensions are subjects of current Rand research.

Table 8

SOVIET TRADE BALANCES WITH COMMUNIST AND THIRD WORLD COUNTRIES,
1981–1983
(In billions of current dollars)

Communist Countries						
	1981	1982	1983		1981	1982	1983
Bulgaria	0.94	0.83	0.62	Vietnam	0.77	0.83	0.90
Czechoslovakia	0.39	0.44	0.61	Cambodia	0.08	0.07	0.09
East Germany	0.52	0.89	0.27	Laos	0.05	0.09	0.10
Hungary	0.34	0.37	0.63	Mongolia	0.75	0.84	0.87
Poland	2.38	1.00	0.66	North Korea	0.04	−0.06	−0.08
Romania	0.15	−0.36	−0.03	Cuba	1.29	0.84	0.44
Afghanistan	0.03	0.19	0.17				

Asia and the Middle East						
Bangladesh	0.01	0.00	0.02	Saudi Arabia	0.04	0.02	−0.19
India	−0.37	−0.60	0.30	Algeria	0.04	0.04	0.12
Indonesia	−0.03	0.02	−0.02	Morocco	−0.01	0.11	0.12
Iraq	1.25	1.33	−0.01	Cyprus	0.01	0.01	0.01
Iran	−0.08	0.54	0.25	Liberia	0.01	0.02	0.00
North Yemen	0.03	0.05	0.06	Tunisia	0.01	0.00	0.01
South Yemen	0.12	0.09	0.33	Burma	−0.02	0.01	0.00
Syria	0.04	0.13	0.13	China	−0.02	0.02	0.03
Turkey	0.26	0.08	0.06	Lebanon	0.01	0.02	0.01
Jordan	0.03	0.13	0.09	Egypt	−0.03	−0.12	−0.14
Nepal	0.03	0.03	0.01	Libya	−0.24	−1.26	−0.01
Pakistan	0.04	0.00	0.01	Sri Lanka	−0.03	−0.02	−0.04

Other Countries						
Mozambique	0.05	0.05	0.10	Panama	0.03	0.01	0.01
Nigeria	0.19	0.35	0.32	Angola	0.07	0.14	0.08
Yugoslavia	0.62	−0.43	0.47	Ethiopia	0.16	0.24	0.20
Nicaragua	0.00	0.04	0.04	Other	−0.11	—	−0.05
				Total, all countries	9.81	6.74	6.29

SOURCES: Cuba: Ruble trade deficits calculated from data on Soviet-Cuban trade in Directorate of Intelligence. Central Intelligence Agency, *The Cuban Economy: A Statistical Review*, June 1984, p. 38. Hungary: Calculated from the difference between socialist trade, trade with China, Yugoslavia, and North Korea, and ruble trade, in *Hungarian Foreign Trade Yearbook (Keulkereskedelmi Statisztikai Evkoenyv (KSE))*, Koezponti Statisztikai Hivatal, Budapest, 1981, 1982, and 1983. All other countries: trade deficits recorded in *Soviet Foreign Trade: Statistical Yearbook, Finance and Statistics (Vneshniaia Torgovlia SSSR: Statisticheskii Sbornik, Finansy i Statistika)*, Moscow, 1982 and 1984.

MILITARY AID DELIVERIES

Military aid deliveries have been estimated by the same procedure followed in our earlier study.[14] Thus, total Soviet military exports are drawn from estimates by the Arms Control and Disarmament Agency (ACDA).[15] From these totals, hard-currency arms sales, derived from the CIA *Handbook of Economic Statistics*, are subtracted from the total export figures to yield estimates of net Soviet military aid.

As in our earlier study, these estimates assume that military sales are made at world-market prices. If actual selling prices were below world-market prices for comparable military equipment, our estimates of the opportunity costs to the Soviet Union (representing the difference between total military exports and hard-currency sales) would err on the low side. Furthermore, we also assume that net military aid is extended in the form of grants. If it is extended in the form of loans, our estimates of military aid will be too high, although the military deliveries would still be a cost if the debt were not repaid, or if the loan were made on concessional terms.

Table 9 lists the data for total military exports, hard-currency sales, and net military aid. Total Soviet military deliveries remained very high in the 1981–1983 period (between $9.8 billion and $11.3 billion). However, the military aid portion fell rather sharply from $7.4 billion in 1980 and $7.0 billion in 1981, to only $3.6 billion in 1983, after subtracting arms sales from total deliveries.

ECONOMIC AID DELIVERIES

Soviet economic aid deliveries have been separately estimated for communist and noncommunist countries. The communist countries include Cuba, Vietnam, North Korea, Afghanistan, and Eastern Europe, while the remainder of Soviet economic aid covers all other Third World countries. The estimates for aid to communist countries are derived from data on "aid extensions," because data on aid deliveries are not available. Deliveries for 1981–1983 have been estimated by assuming that the same ratio between "extensions" and "deliveries" prevailed in those years as prevailed in the most recent year for which the data for both extensions and deliveries were available. The estimates of Soviet economic aid to other Third World

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[14]See *The Costs of the Soviet Empire*, pp. 35–37.

[15]ACDA has raised its earlier estimates of total Soviet military exports by 20 percent for the years 1979 and 1980. The figures for these years are therefore correspondingly higher in Tables 8 and 9 compared with the estimates made in our earlier study.

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Table 9

SOVIET MILITARY EXPORTS, SALES, AND NET MILITARY AID DELIVERIES

(In billions of current U.S. dollars)

Item	1971	1975	1978	1979	1980	1981	1982	1983
Total military deliveries[a]	1.60	4.00	7.70	12.50	11.60	11.20	11.30	9.80
Arms sales[b]	0.40	1.50	2.97	3.85	4.20	4.20	5.46	6.19
Net military aid[c]	1.20	2.50	3.74	8.65	7.40	7.00	5.84	3.62

[a]From U.S. Arms Control and Disarmament Agency, *World Military Expenditures and Arms Transfers*, 1985, pp. 42, 123.

[b]Soviet hard-currency arms sales for 1981–1983 are estimated by subtracting Soviet exports, excluding military goods in those years, from Soviet exports including military goods. See CIA, *Handbook of Economic Statistics* for 1984 and 1985, pp. 70, 72. The corresponding figures for the earlier years are taken from Joan Zoeter, "USSR: Hard Currency Trade and Payments," in Joint Economic Committee, *The Soviet Economy in the 1980s: Problems and Prospects*, Washington, D.C., 1982, pp. 503–504.

[c]Estimated as the difference between total military deliveries and arms sales.

countries are net of estimated repayments from prior economic aid deliveries.

These economic aid estimates are summarized in Table 10.

INCREMENTAL COSTS OF SOVIET MILITARY OPERATIONS IN AFGHANISTAN

Estimates of the incremental costs of Soviet military operations in Afghanistan for 1981–1983 were derived from the corresponding estimates made in our earlier study for 1980 and 1981.[16] The estimates for 1982 and 1983 assumed that the ratio between Soviet troop strength in Afghanistan and the incremental costs of their military operations was the same for 1982 and 1983 as for 1981. Thus, an increase of 11.8 percent in Soviet troop concentrations in Afghanistan between 1981 and 1982 is assumed to generate an 11.8 percent increase in the associated incremental military costs. These estimates are summarized in Table 11.

As mentioned earlier, we have been unable, in the present study as in the earlier one, to estimate the incremental military costs borne by the Soviet Union for the military operations of its allied or proxy Cuban, East German, Vietnamese, and other associated forces in

[16]See *The Costs of the Soviet Empire*, pp. 37, 40, and 41.

Table 10

SOVIET ECONOMIC AID DELIVERIES
(In millions of U.S. dollars)

Item	1971	1975	1978	1979	1980	1981	1982	1983
Aid deliveries to communist countries (Cuba, Vietnam, North Korea, and others)[a]	270	308	530	690	899	1288	967	1010
Aid deliveries to other less developed countries[b]	420	480	260	280	87	71	340	524
Total	690	788	790	970	986	1359	1307	1534

[a]Estimated from figures on aid extensions in CIA, *Handbook of Economic Statistics*, 1984, p. 117, and 1985, p. 113, on the assumption that the ratio between actual deliveries and extensions was the same in the 1980–1983 period as it was in 1979.

[b]The figures shown are net of estimated repayments for 1980–1983, based on the time trend of repayments for 1973–1979. (The regression of repayments on time is: Repayments = 240 + 61t, R^2 = 0.8.) Estimated repayments are, in turn, subtracted from total aid drawings to arrive at net aid deliveries to the less developed countries. See CIA, *Handbook of Economic Statistics*, 1977, 1984, and 1985, and *The Costs of the Soviet Empire*, p. 37.

Table 11

ESTIMATED INCREMENTAL MILITARY COSTS OF SOVIET FORCES IN AFGHANISTAN, 1981–1983

Item	1981	1982	1983
Number of Soviet forces in Afghanistan	85,000	95,000	105,000
Incremental military cost (in billion current dollars)	0.60–1.45	0.67–1.62	0.74–1.79

SOURCE: *The Costs of the Soviet Empire*, p. 40, and associated text.

Africa, Ethiopia, South Yemen, Central America, and Southeast Asia. Presumably, some of these costs, such as the initial military equipment inventory with which expeditionary units from these countries were supplied, are drawn from Soviet military aid deliveries, and would

therefore already be included in that component of CSE. However, other operational costs are probably not included in military aid. For example, the operational costs of fuel, ammunition, vehicles, and other equipment lost in the course of combat or other operations may well be supplied from other organizations in the Soviet Union besides those responsible for military aid deliveries. If so, their omission tends to bias our estimates downward. We encountered this difficulty in our estimates for 1971–1980, and have not been able to resolve it for the later years.

It is also likely that our simple method for estimating incremental Soviet costs in Afghanistan errs on the side of underestimation, because both the intensity and size of Soviet operations have tended to increase. Therefore, using the ratio of operating costs to troop concentration from the earlier years probably leads to underestimates for the more recent period.

COVERT OPERATIONS AND RELATED DESTABILIZATION ACTIVITIES

Our estimates of empire costs for covert and related destabilization activities abroad are based on the same methodology described in our previous study, and are probably among the most uncertain among all of the empire cost components.[17] This method, originally developed by Edmund Brunner and further refined by Susan Anderson for the present study, consists of the following steps: (1) estimating the number of Soviet personnel engaged in intelligence, counterintelligence, subversion, civil and military advisory services, and related covert and destabilization activities; (2) conjecturing about the proportion that is engaged in activities abroad, rather than within the Soviet Union; (3) estimating average per-person ruble costs for the different kinds of personnel and their associated activities, and converting them into dollar figures according to differing exchange rates derived from multiple sources.[18]

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[17]See *The Costs of the Soviet Empire*, pp. 41–42, 57–66.

[18]The sources used in the previous study, as well as in the current one, include defector information and other materials from previous sources, including the following: Oleg Penkovsky, *The Penkovsky Papers*, Doubleday, New York, 1965; Ladislav Bittman, *The KGB and Soviet Disinformation: An Insider's View*, Pergamon, New York, 1985; Michael Voslensky, *Nomenklatura: The Soviet Ruling Class*, Doubleday, New York, 1984; Arkady Schevchenko, *Breaking With Moscow*, Knopf, New York, 1985; John Barron, *KGB Today: The Hidden Hand*, Reader's Digest Press, New York, 1983; William Corson and Ralph Crowley, *The New KGB*, Morrow, New York, 1985; and John Scherer (ed.), *USSR Facts and Figures Annual*, Vol. 6, Academic International Press, Gulf Breeze, Florida, 1982; and other sources.

The methodology previously employed has been modified in several minor ways—for example, eliminating any allowance for direct costs incurred by the Soviet Union in support of terrorist organizations, on the grounds that the evidence in support of these estimates is simply too weak to sustain the estimates;[19] varying the estimated personnel cost factors between categories of activity to reflect changed conditions; and revising the estimates of KGB and MVD personnel to reflect the more recent consensus as to their relative sizes.

Table 12 shows the estimated empire costs for covert and related activities in 1983 in billions of 1970 rubles and dollars.

Between 1980 and 1983, average annual costs of Soviet covert and related activities abroad increased by an estimated 4.2 percent, and this rate has been used in interpolating between the 1980 and 1983 estimates to arrive at ones for 1981 and 1982 (see Table 13). It is also worth noting that between 1980 and 1983, the costs of Soviet covert and related activities expended in the empire increased from an estimated 5.4 percent to 9.2 percent of total empire costs in rubles, and from 10.8 percent to 16.2 percent in dollars, as indicated in Table 6.

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[19]Further investigation would be necessary to determine whether the Soviet Union incurs additional costs through its support of substantial insurgent or terrorist groups. For example, the data we have used on Soviet arms deliveries are from the Arms Control and Disarmament Agency, and do not include the value of arms received by subnational groups. To the extent that the Soviets provide support (in arms or finance) that are not covered by one or another of the cost categories we have used, our estimates for covert and related destabilization activities would be understated.

Table 12

ESTIMATED COSTS OF THE SOVIET EMPIRE FOR COVERT AND RELATED ACTIVITIES, 1983

(Billions of 1970 rubles or dollars)

| Category | Number of Personnel | | | Estimated Ruble Costs | | | Estimated Dollar Costs | | | | | | | | |
| | | | | | | | $2.47 per Ruble | | | $2.08 per Ruble | | | $0.94 per Ruble | | |
	Total	USSR Only	External Empire	Total	USSR Only	External Empire	Total	USSR Only	External Empire	Total	USSR Only	External Empire	Total	USSR Only	External Empire
Government law and order	210,500	210,500	0	3.05	3.05	0	7.53	7.53	0	6.34	6.34	0	2.87	2.87	0
Communist Party employees	278,000	272,700	5,300	4.37	4.31	0.08	10.79	10.65	0.20	9.09	8.96	0.17	4.11	4.05	0.08
KGB															
Agents	124,500	107,900	16,600	1.71	1.31	0.40	4.22	3.24	0.99	3.56	2.72	0.83	1.61	1.23	0.38
Borderguards	230,000	230,000	0	2.53	2.53	0	6.25	6.25	0	5.26	5.26	0	2.38	2.38	0
MVD internal security troops	318,000	318,000	0	3.50	3.50	0	8.65	8.65	0	7.28	7.28	0	3.29	3.29	0
Civilian and military advisers	58,215	0	58,215	1.05	0	1.05	2.59	0	2.59	2.18	0	2.18	0.99	0	0.99
Media organizations	na	na	na	16.26	15.18	1.08	40.16	37.49	2.67	33.82	31.57	2.25	15.28	14.27	1.02
Communist parties, fronts, etc., abroad	na	na	na	0.16	0	0.16	0.40	0	0.40	0.33	0	0.33	0.15	0	0.15
Total	—	—	—	32.65	29.88	2.77	80.65	73.80	6.84	67.91	62.15	5.76	30.69	28.09	2.60

SOURCES: Rand research in process. The $2.47 and $2.08 dollar-ruble conversion ratios are from Imogene Edwards, Margaret Hughes, and James Noren, "US and USSR: Comparisons of GNP," in *Soviet Economy in a Time of Change*, Vol. 1, papers submitted to the Joint Economic Committee, 96th Cong., 1st sess., 1977. The third dollar-ruble rate is from V. Treml and B. Kostinsky, *The Domestic Value of Soviet Foreign Trade*, U.S. Bureau of the Census, 1982.

NOTE: na = not available.

Table 13

COMPARISON OF ESTIMATED RUBLE COSTS OF SOVIET COVERT AND RELATED ACTIVITIES, 1970, 1980, AND 1983
(In billion 1970 rubles)

| Category | 1970 | | | 1980 | | | 1983 | | | Annual Percentage Change | | | | | |
| | | | | | | | | | | 1970–1980 | | | 1980–1983 | | |
	Total	USSR Only	External Empire	Total	USSR Only	External Empire	Total	USSR Only	External Empire	Total	USSR Only	External Empire	Total	USSR Only	External Empire
Government law and order	2.06	2.06	0	2.90	2.90	0	3.05	3.05	0	3.5	3.5	0	1.7	1.7	0
Communist Party employees	3.76	3.69	0.07	4.19	4.11	0.08	4.39	4.31	0.08	1.1	1.1	1.3	1.6	1.6	—
KGB															
Agents	0.93	0.80	0.13	1.50	1.15	0.35	1.71	1.31	0.40	4.9	3.7	10.4	4.5	4.4	4.6
Borderguards	0.92	0.92	0	2.05	2.05	0	2.53	2.53	0	8.3	8.3	0	7.3	7.3	0
MVD internal security troops	1.28	1.28	0	2.83	2.83	0	3.50	3.50	0	8.3	8.3	0	7.3	7.3	0
Civilian and military advisers	0.11	0	0.11	0.82	0	0.82	1.05	0	1.05	22.2	0	22.2	8.6	0	8.6
Media organizations	12.63	11.79	0.84	15.79	14.74	1.05	16.26	15.18	1.08	2.3	2.3	2.3	1.0	1.0	0.9
Communist parties, fronts, etc., abroad	0.11	0	0.11	0.15	0	0.15	0.16	0	0.16	3.2	0	3.2	2.2	0	2.2
Total	21.80	20.54	1.26	30.23	27.78	2.45	32.65	29.88	2.77	3.3	3.1	6.9	2.6	2.5	4.2

NOTE: Estimates for 1970 and 1980 are slightly lower than the corresponding estimates in *The Costs of the Soviet Empire*, due to the several revisions mentioned in the text.

V. REGIONAL DISTRIBUTION OF EMPIRE COSTS

During the 1980-1983 period, the regional distribution of Soviet empire costs also shifted. As the total resource burden imposed on the Soviet economy by the empire fell in absolute amounts, the proportion of the declining total incurred in Eastern Europe fell sharply from about 64 percent in 1980 to 52 percent in 1983. At the same time, the share of the diminished totals incurred in Vietnam and Cuba rose correspondingly, from about 17 percent in 1980 to 28 percent in 1983. The share of total empire costs incurred in Afghanistan and other Third World countries remained nearly constant (20 percent) during the period.

Table 14 shows the regional distribution of total empire costs divided into three groups: the Warsaw Pact countries of Eastern Europe; the non-European members of CMEA (Cuba, Vietnam, and Mongolia); and Afghanistan and other Third World ountries, including Angola, Nicaragua, Ethiopia, South Yemen, North Korea, Syria, Libya, Cambodia, and Laos. With the exception of empire costs for covert and related destabilization activities, all of the separate cost components previously discussed in Sec. IV are included in Table 14 and attributed to one of these three regional groups. Since we have not been able to attribute the costs of covert and related activities to particular countries or regions, these costs are excluded from Table 14.

As Table 14 indicates, the share of total empire costs, excluding those for covert and related activities, incurred in the CMEA countries as a group (Eastern Europe plus Cuba, Vietnam, and Mongolia), has remained approximately constant at 80 percent of total empire costs. However, as previously noted, within the CMEA "family," there has been a redistribution from the East European members of the Warsaw Pact to the outlying CMEA members—Cuba and Vietnam.[1] This distributional shift is largely due to the fall in world oil prices, the five-year moving-average formula used in calculating prices for Soviet oil exports to Eastern Europe, and the large share represented by oil price subsidization in Soviet empire costs in Eastern Europe.

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[1] As indicated in Table 14, the 80 percent CMEA share, and its division among Eastern Europe, Cuba, and Vietnam, is based on total CSE estimates in dollars. Ruble calculations would show a larger share for the CMEA countries because the dollar-ruble conversions raise the relative size of trade subsidies and *net* military aid, and these two components of CSE are concentrated in CMEA.

Table 14

REGIONAL DISTRIBUTION OF EMPIRE COSTS, 1976–1983

(In billion current U.S. dollars and percentage shares)

Region and Cost Category	1976	1980	1982	1983
Eastern Europe	7.39–8.58	20.61–25.84	14.84–19.17	10.76–15.11
(Warsaw Pact and CMEA)	(64.5–67.9%)	(61.9–65.9%)	(51.8–56.6%)	(49.4–55.6%)
Trade subsidies[a]	4.41–5.60	16.48–21.71	10.45–14.78	6.51–10.86
Trade credits[a]	1.17	2.81	3.17	2.76
Economic aid[b]	1.81	1.32	1.22	1.49
Military aid[c]	—	—	—	—
Cuba, Vietnam, Mongolia (CMEA)	2.36	6.04	8.11	6.80
	(18.7–20.6%)	(15.4–18.1%)	(23.9–28.4%)	(25.0–31.2%)
Trade subsidies[a]	1.36	1.99[d]	3.59[d]	3.10[d]
Trade credits[a]	0.48	1.66	1.67	1.34
Economic aid[b]	0.34[a]	0.57[a]	0.79[e]	0.85[e]
Military aid[c]	0.18	1.82	2.06	1.51
Total CMEA	9.75–10.94	26.65–31.88	22.95–27.28	17.56–21.91
	(85.2–86.6%)	(80.0–81.2%)	(80.2–80.5%)	(80.6%)
Afghanistan and other	1.70	6.56–7.36	(5.65–6.60)	(4.23–5.28)
Third World countries[f]	(13.4–14.8%)	(18.8–20.0%)	(19.5–19.8%)	(19.4%)
Trade subsidies[a]	—	—	—	—
Trade credits[a]	negligible	1.62	1.90	2.19
Economic aid[b]	0.24[a]	0.28[a]	0.52[e]	0.68[e]
Military aid[c]	1.46	4.26	2.56	0.62
Military Operations in				
Afghanistan[g]	—	0.50–1.20	0.67–01.62	0.74–1.79
Total, all regions[h]	11.45–12.64	33.31–39.24	28.60–33.88	21.79–27.19

NOTE: Dollar figures are in billions of current dollars. Calculated percentage share ranges are derived as the ratio between the low end of the regional dollar estimate and the low end of total empire costs, and similarly for the high ends.

[a]From *The Costs of the Soviet Empire*, and Table 1. Trade subsidies for Vietnam not estimated because of insufficient data. Estimates for trade subsidies and trade credits for 1982 and 1983 are from Tables 7 and 8 above.

[b]Economic aid is estimated as aid deliveries (rather than "extensions") net of estimated repayments.

[c]ACDA, *World Military Arms Expenditures and Arms Transfers*, 1985, pp. 90, 123. Estimates for Eastern Europe derived by subtracting Soviet arms imports from Warsaw Pact imports, and assuming that the remainder is arms aid supplied by the Soviet Union.

[d]Cuba only.

[e]From CIA, *Handbook of Economic Statistics*, 1984 and 1985.

[f]Includes North Korea, South Yemen, Angola, Nicaragua, Syria, Libya, Cambodia, and Laos, as well as other Third World countries.

[g]See Tables 1 and 11.

[h]Totals exclude estimated costs of covert and related destabilization activities.

Apart from Cuba and Vietnam, the Third World has felt the effects of reduced real resource transfers from the Soviet Union in proportion to the aggregate reductions, so that the share received by this group remained approximately constant during the 1980–1983 period. Compared with the earlier mid-1970s shares, however, the proportion received by this group rose from about 14 percent to over 19 percent.

It is tempting to infer from these altered proportionate shares that the Soviet leadership has altered the relative importance or priority it accords to different regions. Such an inference would be unwarranted, however. The regional shares in total CSE depend on a complex set of factors besides the importance of a particular country or region to the Soviet leadership. For example, the shares depend on the extent to which the Soviet Union can confidently reconcile its continued influence and control in particular parts of the empire with diminished resource transfers; the pressure it is able and willing to place on local leaderships to boost exports to the Soviet Union, rather than imports from it; the linking of imperial subventions to the realization of particular political, military, and other non-economic benefits from particular members of the empire; and other elements in what must inevitably be a complex set of bargaining transactions.

VI. THE BENEFITS OF THE SOVIET EMPIRE

The Soviet leadership clearly believes that it reaps valuable benefits from its empire, as can be inferred indirectly from the large, even though diminished, economic costs of empire that it willingly incurred during the 1981–1983 period, and continues to incur.

Those benefits can also be probed directly, apart from the costs, as we do below. It should be acknowledged, however, that neither approach, direct or indirect, resolves the question of the terms on which allocation of resources for the empire competes with allocations for other principal concerns of the Soviet leadership—notably, the Soviet military establishment, the organs of the state security system, industrial and agricultural investment, and consumer welfare. Perhaps all that can be said on this matter is that the empire's resource claims, principally channeled to the Politburo by the International Department of the CPSU, are among the priority resource uses that top Soviet decisionmakers consider.

In our current and previous estimates of empire costs, we have made some allowance for the economic benefits associated with the empire—for example, by netting out the hard-currency earnings from weapons sales within the Third World. As we noted earlier, however, we have not taken into account other sorts of economic benefits and offsets to empire costs, such as earnings from Soviet military and technical services extended abroad. Such economic benefits are probably small in the aggregate, and unlikely to alter the pattern and the magnitude of our estimates. Consequently, the principal benefits that the Soviet leadership perceives are probably to be found in the political, military, intelligence, and broader strategic Soviet interests, which the empire entails and promotes.

MILITARY BENEFITS

The Soviet empire multiplies the effectiveness of Soviet military forces in several tangible and calculable ways. Soviet naval bases or base rights at Camranh Bay in Vietnam, Socotra Island near Aden in South Yemen, and Cienfuegos in Cuba, enable Soviet forces to be operationally deployed for longer periods of time in the China Sea, the Indian Ocean, and the Atlantic, than would otherwise be possible. If, for example, these units were to home port in, say, Vladivostok, or in the Baltic Sea, their transit times for ship refueling, repair and

maintenance, and crew rest and rehabilitation, would be substantially increased. The result would be reduced time-on-station, or a requirement for larger forces to maintain equivalent striking and patrol capabilities. Vietnam and Cuba are, thus, especially valued participants in the Soviet imperial enterprise for these, as well as other, benefits which they provide to the Soviet Union.

Soviet air bases in Afghanistan, notably in Kandahar, as well as Soviet facilities in Ethiopia and South Yemen, provide potential staging areas that enhance the capabilities of Soviet air forces (for example, by bringing them within direct operational striking distance of the Strait of Hormuz) and Soviet ground, naval, and air forces (by bringing them within immediate operational distance of the Horn of Africa). The result is to increase significantly potential Soviet access to, or control of, oil supplies in the Persian Gulf. Without such forward basing, Soviet combat aircraft would require additional inflight refueling, or would trade off firepower for increased on-board fuel supplies, or would suffer a reduction in operational range. Thus, the forward bases multiply the effectiveness of present Soviet air capabilities or, alternatively, result in cost savings to realize specified military capabilities.

The forward basing of Soviet air forces and 32 ground division equivalents in East Germany, Poland, and Czechoslovakia can also be viewed as enhancing Soviet security by providing a forward defense against NATO or a springboard for a sudden deep-strike Soviet attack. In addition, and perhaps even more important, these forces provide the Soviet Union with a politically useful military lever, because of the constant threat they present to West Europeans.[1]

That tangible military and political benefits are associated with the East European empire is not altered by the fact that these Soviet forces—especially the Soviet ground divisions maintained in Central and Eastern Europe—are essential for maintaining Soviet political control in this most important part of the empire. True, some commentators have argued that the crucial role of these Soviet forces in maintaining political control within the East European countries themselves detracts from their effectiveness as a threat—an argument that some West Europeans are unlikely to find persuasive, however.

Furthermore, the Soviet Union derives tangible military benefits from the opportunity to develop and test both equipment and tactics

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[1]For reasons discussed earlier, we have not attributed any of the incremental costs of empire to Soviet forces maintained in Eastern Europe.

under combat conditions in Afghanistan. Since the Soviet invasion in 1979, the Soviets have been able to develop combined operations using airborne command posts, helicopter gunships, and small infantry units, test chemical weapons, and acquire battle conditioning of ground forces. That these military benefits are probably substantial does not, of course, imply either that the 1979 invasion was undertaken with this aim in view, or that the full costs of Soviet operations in Afghanistan were accurately anticipated.

Finally, the empire provides the opportunity for developing and logistically supporting allied or "proxy" forces which can be deployed instead of, or in conjunction with, Soviet resources. These forces can be used to sustain communist control in areas where it is contested or fragile (for example, Angola, South Yemen, and Nicaragua), to strengthen communist-led insurgencies in other areas, and to further other purposes. In effect, such proxy forces indirectly increase the Soviet Union's capability to project military power in circumstances where direct deployment of Soviet forces is precluded or is deemed imprudent.

INTELLIGENCE BENEFITS

Expansion of the Soviet empire in the past decade has been accompanied by an apparently substantial increase in the scope of Soviet intelligence operations abroad. One estimate places the increase in the total number of Soviet KGB and GRU (military intelligence) agents abroad at 25 percent between 1971 and 1980, with a further expansion of about 7 percent between 1981 and 1983.[2] Probably most of these increases would have occurred even without the expansion of the Soviet empire. Moreover, many of the additional agents have been placed in countries outside the empire. Indeed, some of this expansion is a standard Soviet operating procedure associated with expansion of *non*-intelligence Soviet personnel stationed abroad, because the KGB is responsible for monitoring all of the Soviet external establishment.

In any event, expansion of the Soviet empire has provided Soviet intelligence agencies with numerous additional points of contact, listening posts, and sources of information.

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[2]See the Appendix by Edmund Brunner, Jr., in *The Costs of the Soviet Empire*, p. 60. Soviet covert and related activities are dealt with in Rand research, as yet unpublished, conducted by Susan Anderson and Edmund Brunner, Jr.

POLITICAL AND STRATEGIC BENEFITS

The political benefits derived by the Soviet Union from its empire are less tangible and less quantifiable, but probably even more important than the military benefits.

From the historical perspective of Marxist-Leninist ideology, the growth of "socialist internationalism" is the inevitable result of capitalist imperialism. Although the original Marxist ideology has undergone adaptation in many ways, accretions to the international socialist fold are essential ingredients in Leninism, as well as in the system's claim to legitimacy. Such accretions undergird the self-esteem of the Soviet leadership and of other "fraternal" states. Maintaining and expanding the empire is probably equated by much of the Soviet leadership with the "historically inevitable process" through which international socialism will triumph in the world at large. The empire thus becomes a source of reassurance to the leadership, as well as of broader domestic support for it, to the extent that an expansion of Soviet hegemony also appeals to Soviet nationalism and pride. Furthermore, expansion of the empire performs a valuable function for the leadership by contributing to the sense of urgency and crisis that promotes the system's internal cohesion and control. Maintenance of the core empire in Eastern Europe is probably also construed by the leadership as closely linked to maintenance of its own rule in the Soviet Union.[3]

It is worth noting that the Soviet leadership has never disavowed the support of "wars of national liberation" as a fundamental tenet of modern Marxist-Leninist doctrine—neither in the heyday of detente in the 1970s,[4] nor in the more recent twists and turns of Soviet policy under Gorbachev. And the Brezhnev doctrine, which proclaimed the irreversibility of historical processes that bring socialist revolutions to political power, also remains part of Soviet doctrine. These two tenets of Leninist thinking convey the high political value placed by Soviet leadership on maintaining and expanding the empire.

Finally, the maintenance and expansion of the empire clearly figure as elements in the Soviet strategic competition with the United States. In this strategic calculus, gains and losses of the respective sides, even if they do not sum to zero, at least register prominently with their signs reversed, in the calculus of the respective leaderships. That Grenada did not become a part of the socialist international fraternity was clearly an outcome uncongenial to the Soviet Union; that Nicaragua

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[3]See A. Ross Johnson, *The Impact of Eastern Europe on Soviet Policy Toward Western Europe*, The Rand Corporation, R-3332-AF, March 1986, p. 5.

[4]For a strong reiteration of this Soviet position, see Henry Trofimenko, "The Third World and U.S.-Soviet Competition: A Soviet View," *Foreign Affairs*, Summer 1981.

and Angola remain part of that fraternity is equally uncongenial to the United States.

Vladimir Bukovsky has cogently summarized the general political and strategic importance of the empire to the Soviet Union, by noting that "the survival of the Soviet regime depends today on three permanent factors . . . {including} expansion in the third world."[5]

Bukovsky also stresses the empire's importance to the leadership by observing that in the past decade the Soviet Union's expansionist activities abroad

> . . . became, along with military power, the only tangible measure of success the Soviet system could produce, the only proof that the communist ideology is still correct and the world revolution is still in the making. Besides, in the areas of expansion, there is often a direct clash with American interests and, therefore, an additional source of tension, another opportunity to show Soviet superiority over "enemy number one."[6]

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[5]The other two "permanent factors" cited by Bukovsky are: (1) the threat of war and international tension; and (2) military competition with the West. See V. Bukovsky, "The Political Conditions of the Soviet Union," Chap. 1, in Henry Rowen and Charles Wolf (eds.), *The Future of the Soviet Empire* (forthcoming).

[6]Ibid.

VII. CONCLUDING OBSERVATIONS: IMPLICATIONS AND SIGNIFICANCE OF THE DECLINE IN SOVIET EMPIRE COSTS

During the early 1980s, Soviet empire costs declined appreciably. By 1983 they had fallen about 33 percent from their 1980 peak in terms of constant 1981 dollars (from about $44 billion to $29 billion), and by 39 percent in constant 1980 rubles (from 46 billion rubles in 1980 to 28 billion in 1983).

Nevertheless, empire costs remained substantial in both absolute and relative terms. As a ratio to Soviet ruble GNP, empire costs in 1983 were still 4 percent, and as a ratio to dollar GNP were 1.6 percent, having declined from ratios of over 7 percent of ruble GNP in 1980, and 3 percent of dollar GNP, respectively. As a ratio to Soviet military spending in rubles, empire costs in 1983 were 30.8 percent compared with 54.3 percent in 1980; the corresponding ratios in dollars were 12.2 percent in 1983 and 20.4 percent in 1980.

In 1983 dollars, the reduced amounts of Soviet empire costs were still more than twice the corresponding costs of the U.S. "empire." Table 15 shows the roughly corresponding U.S. costs. Soviet empire costs in Table 15 have been adjusted by subtracting the costs of Soviet covert and related destabilization activities, thereby making the Soviet estimates more nearly comparable with the U.S. cost estimates. With this adjustment, Soviet empire costs were about $25 billion in 1983, compared with U.S. costs of $10.9 billion. As ratios to GNPs, U.S. empire costs were 0.3 percent of U.S. GNP in 1983, whereas the adjusted Soviet empire costs were 1.3 percent of Soviet dollar GNP and 3.6 percent of Soviet ruble GNP.

The interesting question is what accounts for the substantial decline in Soviet empire costs in the early 1980s. Four possible explanations are worth consideration: (1) reduced economic needs and demands by the empire; (2) reduced value attributed to the empire by the Soviet leadership; (3) automatic operation of the five-year moving-average pricing formula used by the CMEA countries in intra-CMEA trading arrangements;[1] and (4) increased resource pressures resulting from growing stringencies in the Soviet economy.

The first explanation lacks supporting evidence. In fact, the economic predicaments of the East European countries, as well as of

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[1]See *The Costs of the Soviet Empire*, pp. 41-42.

Table 15

COMPARATIVE COSTS OF THE U.S. AND SOVIET EMPIRES
(In billion current dollars and percentages)

Item	1981	1982	1983
U.S. economic aid ($)	4.2	3.9	4.0
U.S. military aid (budgetary and nonbudgetary) ($)	3.6	5.4	6.6
Export-Import Bank loans (net of repayments) ($)	2.1	0.8	0.3
Total U.S. costs ($)	9.9	10.0	10.9
Ratio of total to U.S. GNP (%)	0.3	0.3	0.3
Adjusted CSE[a] as dollar share of Soviet GNP (%)	2.4	1.8	1.3
Adjusted CSE[a] as ruble share of Soviet GNP (%)	6.1	4.9	3.6

SOURCES: U.S. Government, *Budget of the United States Government*, "National Need: Coordinating International Relations: Outlays," Washington, D.C., 1983, 1984, 1985. GNP figures from Joint Economic Committee, *Economic Indicators*, Washington, D.C., December 1985. Soviet empire costs and ratios adjusted from Tables 4 and 5.

[a]Soviet empire costs (CSE) adjusted by removing costs of covert operations and destabilization activities.

Cuba and Vietnam, worsened, or, at best, exhibited only limited improvements.[2] In general, the 1980s have been marked by the stagnant or diminished economic performance of centrally planned, Soviet-type economic systems relative to market-oriented systems. Poland, Rumania, Cuba, Vietnam, and North Korea have been among the most severely troubled examples, but the same general pattern has been manifest in most of the Soviet empire.

There is also little evidence for the second hypothesis—that the Soviet leadership in the 1980s attaches less importance to the political, military, intelligence, and general strategic benefits derived from the empire. Indeed, the opposite seems equally likely, for the reasons cited above by Bukovsky.

Therefore, it seems probable that the third and fourth hypotheses must carry the brunt of the explanation for declining empire costs in the early 1980s.

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[2]See "East European Economies: Slow Growth in the 1980s," Vol. I, *Economic Performance and Policy, Selected Papers*, Joint Economic Committee, 99th Cong., 1st sess., October 1985, Washington, D.C., as well as Keith Crane, *The Creditworthiness of Eastern Europe in the 1980s*, The Rand Corporation, R-3201-USDP, January 1985, and Nick Eberstadt, "The Economic Performance of Eastern Europe and Other Parts of the Soviet Empire," in Rowen and Wolf (eds.), *The Future of the Soviet Empire* (forthcoming).

Between 1980 and 1983, world oil prices declined by 15 to 20 percent in real terms. Consequently, through the workings of the five-year moving-average pricing formula for Soviet oil exports to the CMEA countries of Eastern Europe, the subsidy on these oil exports diminished considerably. By 1983, oil prices charged to the East European countries were only 13 percent below the prices charged by the Soviet Union to West European importers.[3] Although the Soviets have continued to subsidize trade with Eastern Europe, the subsidies have increasingly taken the form of paying above-market prices for machinery imports from Eastern Europe and sugar imports from Cuba, with a diminished role played by the below-market prices charged for Soviet oil exports to Eastern Europe.

The fourth hypothesis must also be given substantial credence. Tightened economic stringencies within the Soviet economy have surely provided stronger incentives for the Soviet leadership to monitor and control the burden of the real economic costs of the empire. The CIA has estimated Soviet economic growth in 1980 at 1.7 percent, 1981 at 1.9 percent, 1982 at 2.6 percent, and 1983 at 3.7 percent.[4] Some independent estimates suggest that even these unimpressive figures may be too high, and that the actual figures may average 1 to 2 percent lower.[5] Estimates for Soviet real economic growth during the remainder of the 1980s are about 2 percent per year, which is about 40 percent below the estimated growth rate during the 1970s. During the 1980–1983 period, per capita consumption in the Soviet Union grew only very slightly, if at all.[6] Finally, the acute problems besetting the Soviet economy in terms of declining factor productivity, rising capital-output ratios, and the perennial and pervasive problems of incentives and rigidity in the system as a whole, are well known and amply documented.[7]

That the decline in empire costs has been influenced by these serious stringencies in the Soviet economy, rather than simply by the workings of the CMEA pricing formula, is also suggested by the fact that other components of empire costs besides trade subsidies decreased during the first three years of the 1980s. For example, trade

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[3]See Sec. IV, "Trade Subsidies," and Marrese and Vanous, "Soviet Trade Relations with Eastern Europe, 1970–1984."

[4]CIA, *Handbook of Economic Statistics*, 1985, p. 64.

[5]Alec Nove, "Has Soviet Growth Ceased?" paper presented to the Manchester Statistical Society, Manchester, England, November 15, 1983.

[6]CIA, *Handbook of Economic Statistics*, p. 64.

[7]See Abraham Becker, *Sitting on Bayonets: The Soviet Defense Burden and the Slowdown of Defense Spending*, The Rand/UCLA Center for the Study of Soviet International Behavior, JRS-01, December 1985, pp. 29–33.

credits declined from \$9.8 billion in 1981 to \$6.3 billion in 1983, and military aid net of hard-currency repayments also declined in the corresponding period (see Table 1).

Finally, the seriousness of the Soviet economic predicament is perhaps indicated by one additional factor relating to empire costs: In the first three years of the 1980s, Soviet real economic growth was slower while empire costs were declining than it was during the 1970s, when empire costs were higher. According to estimates in our earlier study of the tradeoff between empire costs and the growth of defense production or of civil production, each 1 percent reduction in the CSE ratio to GNP should be expected to raise the attainable annual growth of civil production by 0.3 percent, or of military production by 0.6 to 1 percent.[8] Yet, while the empire costs as a ratio to GNP were, according to our estimates, decreasing by 2 to 3 percent—from about 7 percent to 4 percent—growth rate in *both* Soviet civil and military production fell! That Soviet growth in the early 1980s should have been higher in light of the lower empire costs is not inconsistent with the prior interpretation: namely, that lagging Soviet growth probably led to action by the Soviet leadership to reduce these costs; absent such reductions, economic growth would probably have been still lower.

In sum, while the maintenance and continued expansion of the Soviet empire probably persists as a high-priority claimant on Soviet resources, the availability of these resources became more acutely constrained in the early 1980s. Moreover, this prospect seems likely to continue for the rest of the decade, especially in view of the sharp declines that occurred in 1985 and 1986 in world oil prices, thereby eroding Soviet hard-currency earnings by 30 percent or more. Under these circumstances, the costs of empire in the rest of the 1980s are likely to display the same pattern that was manifest in the early 1980s: tighter constraints, and more careful monitoring and control by the Soviet leadership. In managing the imperial enterprise, Soviet behavior may be acutely ambivalent: on the one hand, placing greater emphasis on self-reliance among the members of the empi.e and their diminished access to Soviet benefactions, while, on the other hand, retaining a willingness to pour resources into promising opportunities for empire expansion. Perhaps the Soviets will resolve this dilemma by applying more exacting criteria in the selection of promising opportunities.

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[8]See *The Costs of the Soviet Empire*, pp. 44-46. Accepting these parameters, on the premise that military procurement was only 3 or 4 percent per annum during the first part of the 1980s, a reduction of 2 or 3 percent in the ratio of CSE to GNP should have enabled increased growth of civil production of more than 1 percent in real terms per annum compared with the decade of the 1970s; instead, the growth rate in civil production decreased.

The task of managing Soviet imperial operations can be likened to that of managing any large enterprise: The concern is to limit costs while furthering management's multiple, and sometimes conflicting, objectives. In times of "prosperity"—for example, the 1970s, when oil prices were rising and hard-currency earnings were high—management is likely to be more concerned with furthering its objectives than with limiting costs. In times of "recession"—for example, the 1980s—management is more likely to be concerned with limiting costs. Viewed in this light, it is possible, although not demonstrable, that lowered empire costs may partly reflect increased efficiency in managing the imperial enterprise: obtaining the same, or perhaps even increased, benefits from the empire while reducing the attendant costs. Indeed, the tighter economic constraints encountered by the Soviet Union may have prodded the leadership to take advantage of opportunities for increasing efficiency that were previously unexploited.

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